

# Operation Manual

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## Chapter 1 Specifications

### 1-1 Machine Model

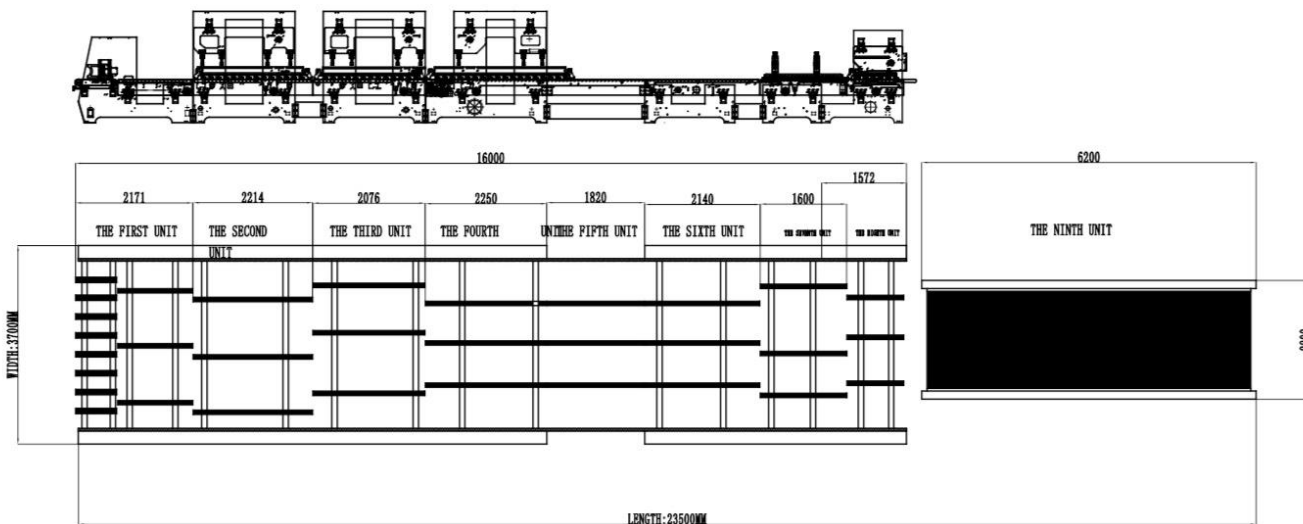
Model	ZH-M2800-4&6	ZH-M2500-4&6	ZH-M2200-4&6	ZH-M1850-4&6
feeder	√	√	√	√
Alignment section	√	√	√	√
Prefold section	√	√	√	√
Lock bottom section	√	√	√	√
Electric rail	√	√	√	√
Folding section	√	√	√	√
Trombone section	√	√	√	√
Press section	√	√	√	√
4&6 corner	√	√	√	√

### 1-2 Machine Specifications

Suitable material	cardboard (250-1200) gsm, A/B/C/E/F/N flute
Function	side glue, double side glue, lock bottom, 4 corner, 6 corner
Max speed	200m/min
Feed method	Automatic continuous feeding
Glue	Cold or hot glue
Power	65KW, 380V,50HZ
Machine weight	Such as 1-3 figure

# 1-3 Mechanical dimensions and weight

## Machine floor plan



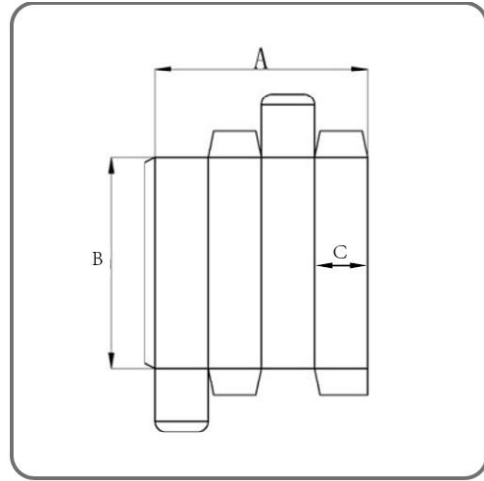
Weight:

ZH-M28002800-4&6

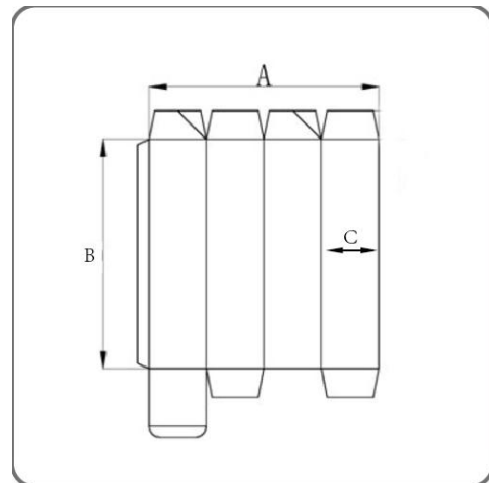
23.5T

## 1-4 Common type and size

Straight line box(side glue)	
Model	2800Type
A	600-2800
B	250-1300
C	40-1200



Bottom-lock box	
Model	2800Type
A	750-2700
B	250-1300
C	40-1200



4-corner box		
Model	2800Type	
A	650-2650	
B	300-1000	
C	30-250	

6-Corner box		
Model	2800Type	
A	650-2600	
B	300-1000	
C	30-250	

NOTE: for side glue, it can glue 5 layer (like BE, EE..)

Lock bottom box it only 3 layer (like B, C...), because if for the 5 layer, some corner have 5\*5 layer. In this way, the corrugated is easy to burst

4 corner some design it can 5 layer, it depends on the box design, and the size, shape.

maximum technical values shown cannot be applied simultaneously





## Chapter 2 Safety Precautions

### 2-1 Safety label

Operating manual and machine itself, All have detailed descriptions of warning signs and meanings.

Please pay attention to the symbols and observe the regulations at all times.



symbol	Name and Meaning
	<p>Note that the hook grips the hand</p> <p>This symbol is a hazard label, used for warnings and instructions: When the servo hook rotates, If you reach under the hook, Can cause serious injury, Potentially dangerous parts.</p> <p>These warning items include the necessary safety mechanisms to avoid dangerous locations.</p>
	<p>Risk of electric shock</p> <p>This symbol is a hazard label, Used in warnings and instructions: There may be dangerous high voltage causing electric shock or burns,, Potentially dangerous parts.</p> <p>These warning items include the necessary safety mechanisms to avoid dangerous locations.</p>

### 2-2 Color of safety label

Color	Meaning or purpose	Scope of application
<b>red</b>	stop Forbid	Stop mark Delegate emergency device Stop the device temporarily Prohibition
<b>yellow</b>	caveat Forbid	Indication of danger Warning sign Instructions for hazardous areas Channel obstacles

<h1>blue</h1>	Coercive action	Observe personal safety regulations and equipment Mandatory mark
<h1>green</h1>	Safety instructions	Signs indicating safety, ambulance stations, aid locations Emergency exit sign

### 2-3 Location of safety labels

	symbol	Name and Meaning
<span style="border: 1px solid black; padding: 2px;">1</span>		<p>Note that the hook grips the hand</p> <p>This symbol is a hazard label, used for warnings and instructions: When the servo hook rotates, If you reach under the hook, Can cause serious injury, Potentially dangerous parts.</p> <p>These warning items include the necessary safety mechanisms to avoid dangerous locations.</p>
<span style="border: 1px solid black; padding: 2px;">2</span>		<p>Risk of electric shock</p> <p>This symbol is a hazard label, Used in warnings and instructions: There may be dangerous high voltage causing electric shock or burns,, Potentially dangerous parts.</p> <p>These warning items include the necessary safety mechanisms to avoid dangerous locations.</p>

Note:   This code is a warning symbol,

### 2-4 Emergency stop switch position

S

For the position of the emergency stop switch of this code, see "Location Diagram", please pay attention to it during operation to avoid injury.

third chapter

Control switch of each part of the machine, illustration

3-1 Paper feed section operation panel

3-2 Remote control panel

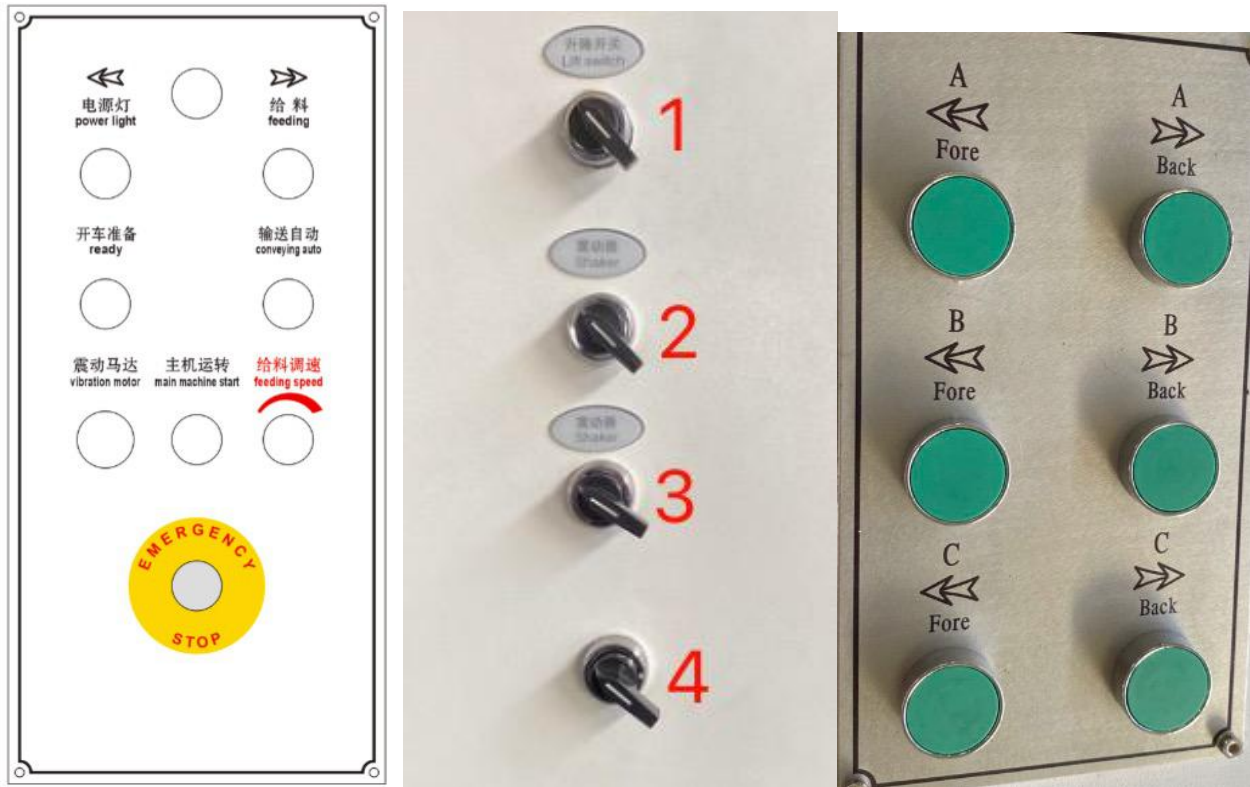
3-3 Bottom folding part control box

3-4 Conveyor button

3-5 Hook bottom and touch screen of pressure transmission part

Third chapter  
Control switch of each part of the machine, illustration

3-1 Feeder section operation panel (图 3-1)



1.开车准备 (Drive buzzer):The buzzer will sound when pressed, Only press this switch then other switches can take effect.

2.主机运转 (Main motor run ) :Main machine motor switch.

3.给纸 (Feeding): Press the switch, the paper feed motor starts, The paper feed belt runs and the machine starts to feed paper.

Press again, the machine stops feeding.

Feeding speed:adjust machine speed.

4.输送自动 (Press section):The press section starts automatically.

5.震动器 (Vibration motor): Turn on the vibrator to make the paper feeding smoother.

6.紧急停止 (Main motor stop): Press to stop the machine, All control buttons do not work, When the machine needs to be restarted, Must rotate in the direction of the pointer to make the button pop up, then Machine can work normally.

Note: 1. The buzzer will sound when pressed, Only press this switch then other switches can take effect.

2. Press to stop the machine, All control buttons do not work, When the machine needs to be restarted, Must rotate in the direction of the pointer to make the button pop up, Press the Drive buzzer button again.then Machine can work normally.

No.1: lift switch

No.2: shaker

No.3: shaker

No.4:Suction switch

Fore: guide move right side.

Back:guide move left side.

### 3-2 Remote control panel



Feeding: Press the switch, the paper feed motor starts, The paper feed belt runs and the machine starts to feed paper.

Revolve(run): Main machine motor switch

Prepare (inch run): 1. The buzzer will sound when pressed, Only press this switch then other switches can take effect.

2. Press the button of the control loop, the main loop is energized, release the start button, the main loop is out of power

The red button: Switch of remote control(When turned on, the remote control powers up)

急停 Jerk (Main motor stop): Press to stop the machine, All control buttons do not work, When the machine needs to be restarted, Must rotate in the direction of the pointer to make the button pop up, then Machine can work normally.

Accelerate:Speed increase

Decelerate:Speed reduction

Trombone section screen:



Conveying auto:Automatic operation status of the conveying department, following the main machine.

When finish the job, still have the box in the conveying section, press this button change to manual.

Main motor knob: adjust main machine speed.

Feeding:Press the switch, the paper feed motor starts, The paper feed belt runs and the machine starts to feed paper.

Ready:1.The buzzer will sound when pressed, Only press this switch then other switches can take effect.

2.Press the button of the control loop, the main loop is energized, release the start button, the main loop is out of power

Main machine start:main machine running

### 3-3 Trombone section control box, Feeder section

#### 1. Emergency stop: Emergency stop button.

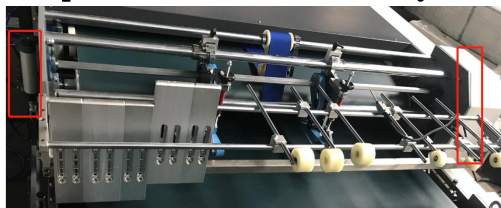


### 3-4 Press section button (图 3-4)



No.1: The total air pressure of the machine

No.2: At the frone of the conveying section, there are two cylinders,It is used to adjust the pressure of these two cylinders.



No.3: Air pressure adjustment of the conveying part



No.4: Before moving the upper layer of the conveying part, the air pressure of the conveying part must be released. And also need Loosen this screw.



No.5:

No.6: Move forward

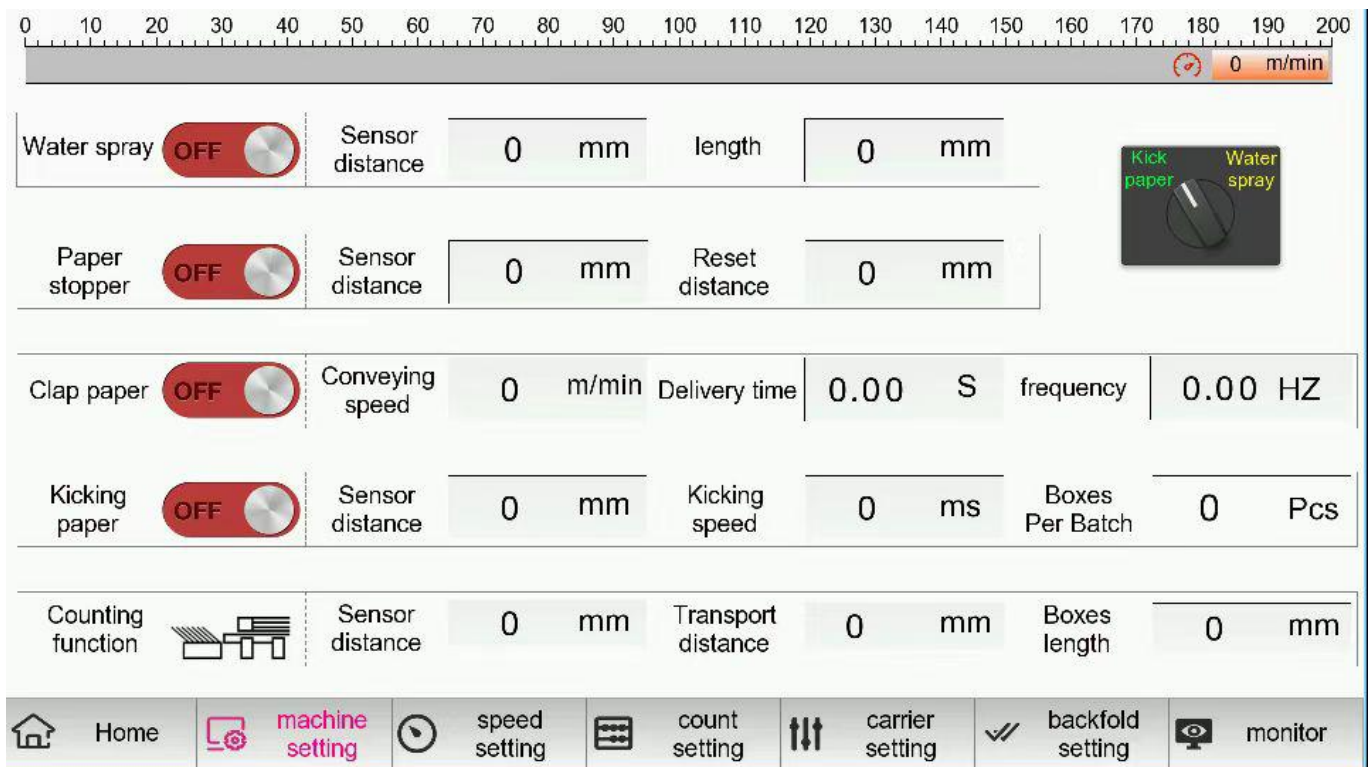
No.7: Move backward

3-5 touch screen illustrative

Touch screen specification

1. Turn on the main power switch, the touch screen starts and enters the illustrated interface





Water spray: creasing spray.

Sensor distance: the distance from sensor to spray head

Length:spray length

Paper stopper:squaring at trombone

Sensor distance: the distance from sensor to squaring.

Reset distance:The distance between beating and returning to position(mean the time)

Clap paper:Spank the box (application for flat box)

Conveying speed: spank function usually with install a sensor at conveyor, When the stacked boxes touch the sensor, the conveyor department speeds up the transfer of the boxes)

Delivery time: The time it takes to run faster

Frequency:speed

Kicking paper: counting function

Sensor distance:the distance from sensor to Air cylinder.

Kicking speed:Time from kicking out to returning position

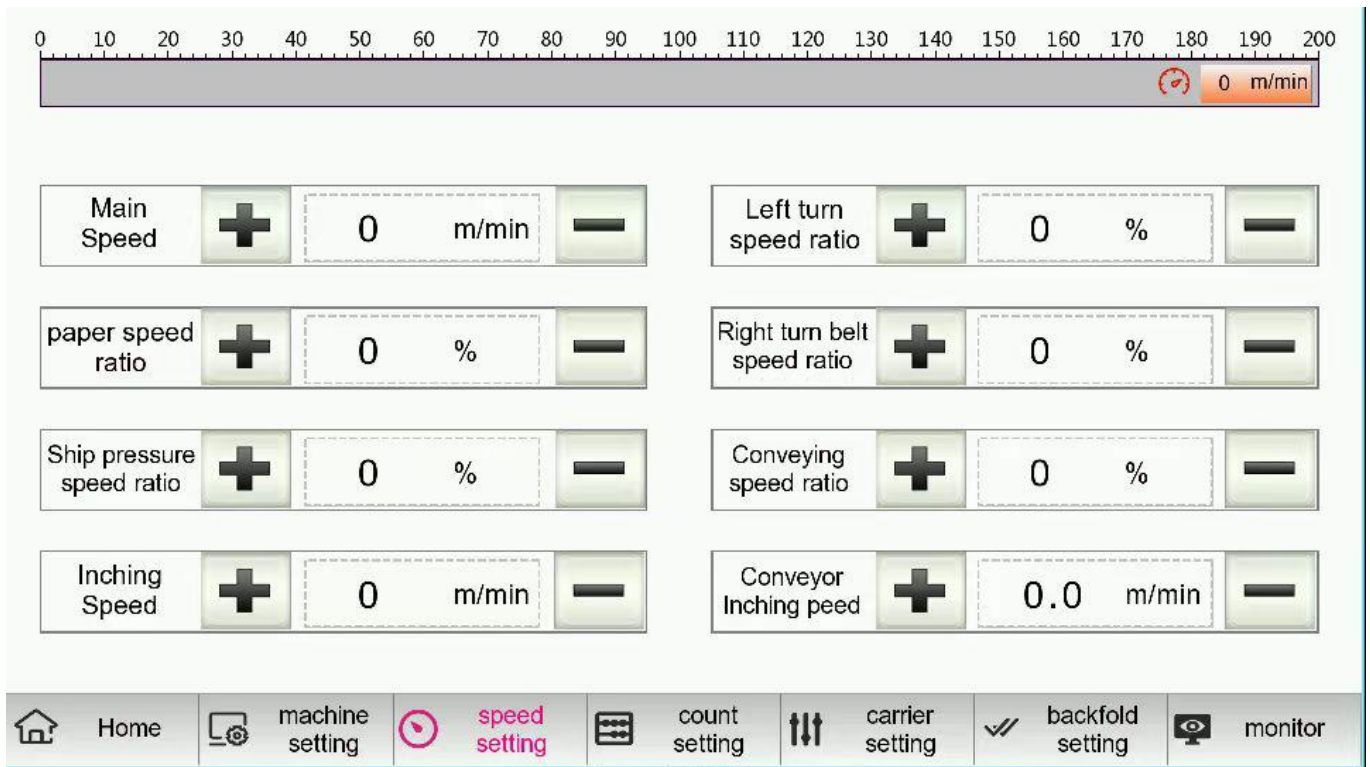
Boxes per batch:mean if you want 30pcs one mark, you setting 30, if 50 you setting 50

Counting function: this is conveyor setting.

Sensor distance:the distance from sensor to conveyor.

Transport distance: the distance between two boxes at conveyor.(also can understood as the speed of the conveyor)

Boxes length: box length.



Main speed: main machine speed

Paper speed ratio: Speed ratio between feeder and main machine

Ship pressure speed ratio: Speed ratio between trombone and main machine

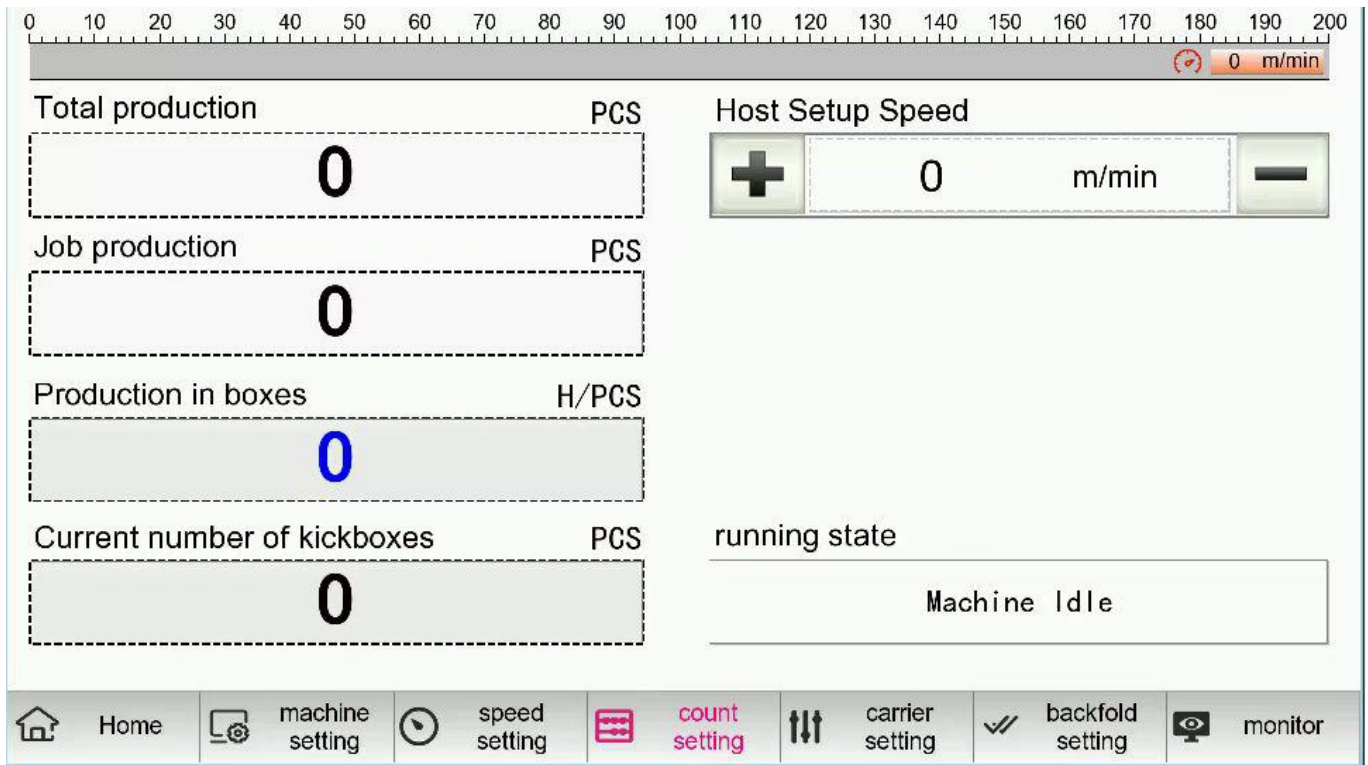
Inching speed: inching speed

Left turn speed ratio: folding section outward belt speed

Right turn belt speed ratio: folding section outward belt speed

Conveying speed ratio: speed ratio of conveyor

Conveying inching peed: Conveyor speed in manual mode



Total production: Total production of qty

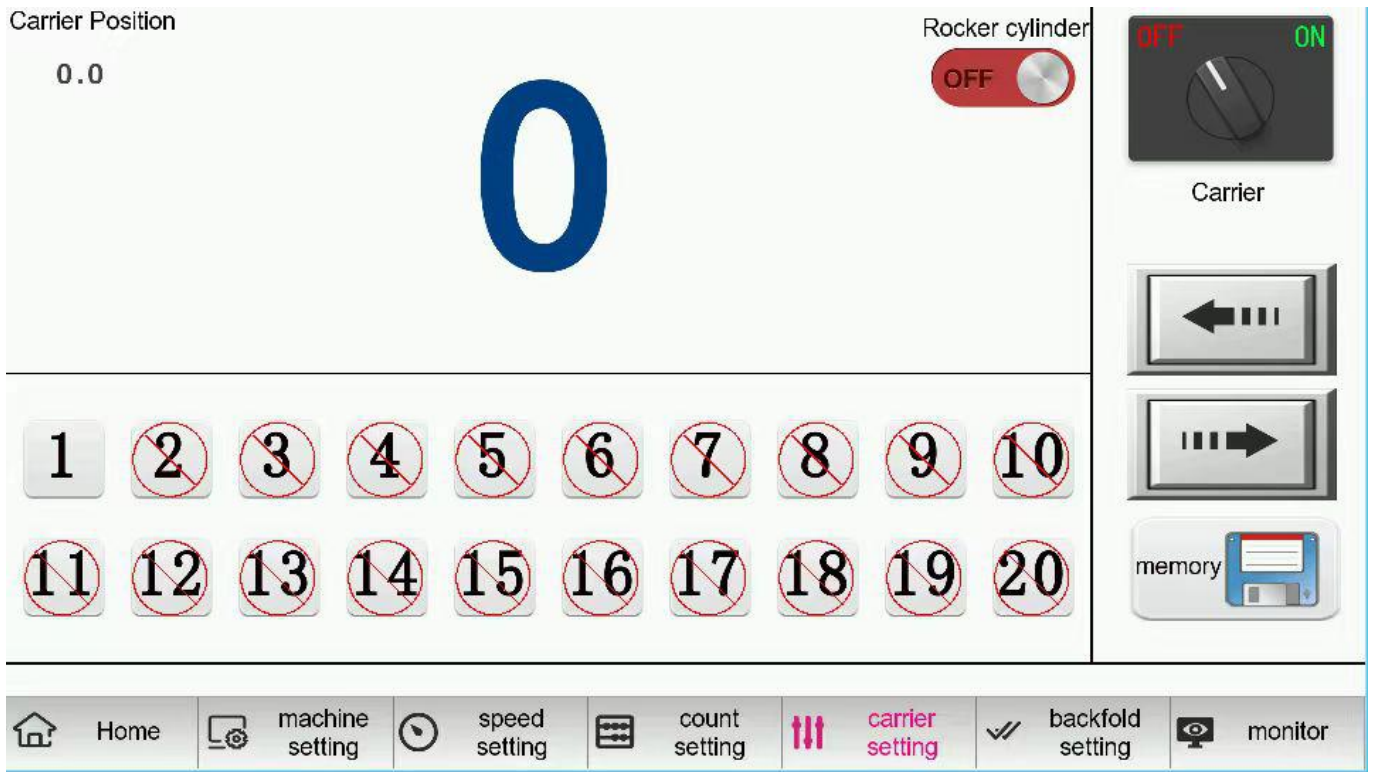
Host setup speed: main machine speed

Job production: production qty of each batch

Production in boxes: production qty in one hour

Current number of kick boxes: for example, counting set 50pcs, it mean 50pcs one mark. This value cycles from zero to 50.

Running state: running state



Carrier: the switch of the carrier.

Memory: enter memory page.

Rocker cylinder: when we setup memory, the cylinder at feeder must In an elevated state.

Back Fold Servo 2

OFF

The sensing distance is greater than 150mm

Sensor distance	0 mm
Hooks angle	0 °
Servo wait distance	0 mm
Hooks speed	0 %
Zero point position	0 °

Back Fold Servo 1

ON

The sensing distance is greater than 150mm

Sensor distance	0 mm
Hooks angle	0 °
Servo wait distance	0 mm
Hooks speed	0 %
Zero point position	0 °

Home
machine setting
speed setting
count setting
carrier setting
backfold setting
monitor

Hooks speed: The speed of the hook, the speed of rotation

Sensor distance: The distance between photoelectricity and hook. If the hook starts too early, the box is not hit. The value needs to be increased. If the hook hits the center of the box, too much, The value needs to be reduced

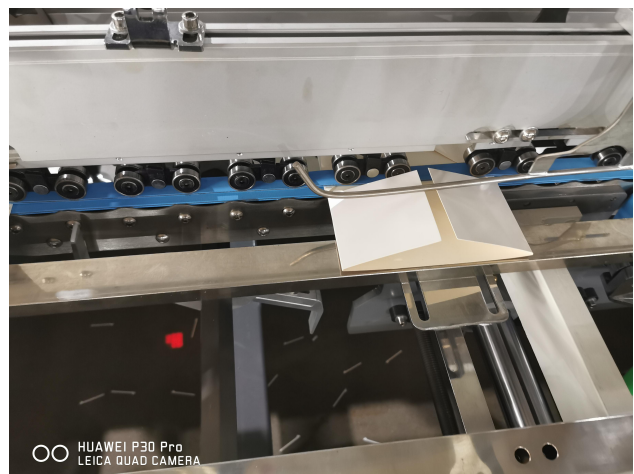




Hooks angle:After the hook is pressed into the box, the angle between the hook and the box(At this point the hook will stay at this Angle for a while, allowing the paper to pass through) , The role is to prevent the box from rebounding back, please see follow photos:

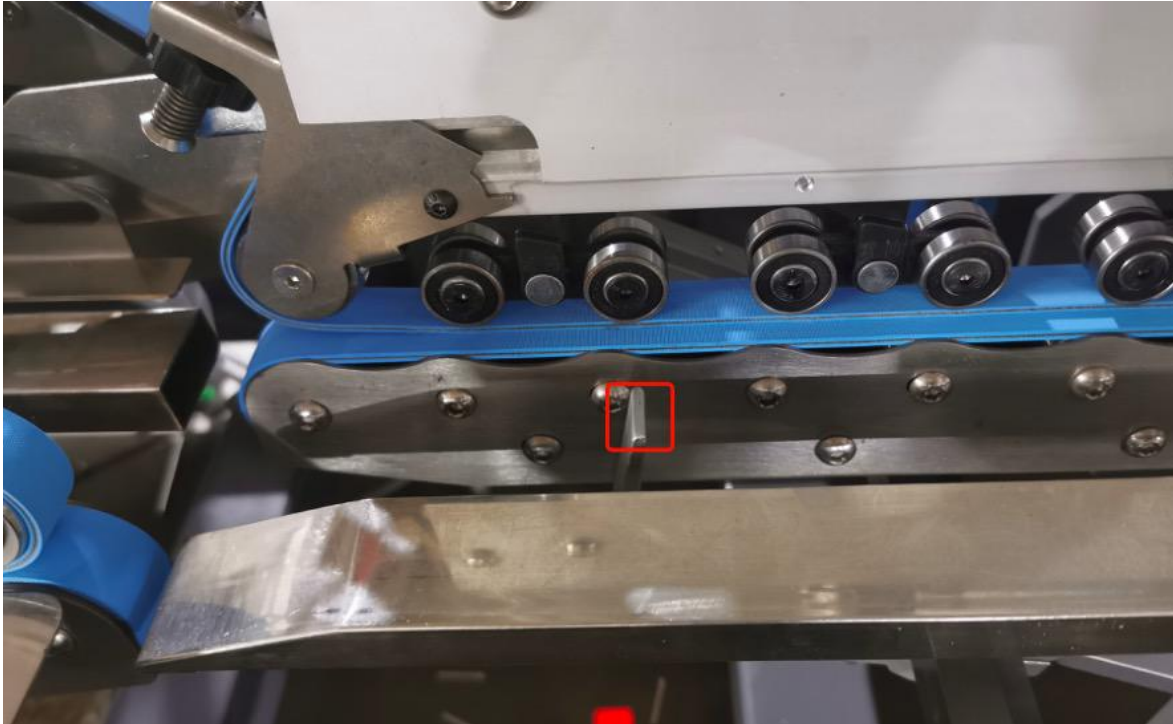


Servo wait distance:Based on the length of the hook, the general hook length is 100, set 80, if it is 60, set 40, then Fine-tune according to the actual box. (After the hook is pressed into the box, the angle between the hook and the box(At this point the hook will stay at this Angle for a while, allowing the paper to pass through, The distance the paper travels when the hook stays)



## Zero point position

The stop position of the origin of the hook, the hook should not exceed the belt, it should be lower than the belt 4mm. If the hook is not changed, the value will not change.



Manual test window

### Input monitor

0 output 0

Inch signal <input type="checkbox"/>	E-stop signal <input type="checkbox"/>	Feed signal <input type="checkbox"/>	Run signal <input type="checkbox"/>	Counter sensor <input type="checkbox"/>
Conveyor manual <input type="checkbox"/>	Feeder acc <input type="checkbox"/>	Feeder dec <input type="checkbox"/>	Conveyor acc <input type="checkbox"/>	Conveyor dec <input type="checkbox"/>
Blow <input type="checkbox"/>	Carrier right <input type="checkbox"/>	Carrier left <input type="checkbox"/>	Carrier num. down <input type="checkbox"/>	Carrier num. up <input type="checkbox"/>
stop <input type="checkbox"/>	Waste discharge <input type="checkbox"/>	alert <input type="checkbox"/>	Run speed Acc <input type="checkbox"/>	Run speed Dec <input type="checkbox"/>
Conveying forward <input type="checkbox"/>	Conveying backward <input type="checkbox"/>	Limit before conveying <input type="checkbox"/>	Limit after conveying <input type="checkbox"/>	Vibration switch <input type="checkbox"/>
Paper height <input type="checkbox"/>	Beat paper low <input type="checkbox"/>	Blocking protection <input type="checkbox"/>	E-stop signal <input type="checkbox"/>	spare <input type="checkbox"/>

### Output monitor

Run indicator <input type="checkbox"/>	Coveyor indicator <input type="checkbox"/>	Buzzer <input type="checkbox"/>	Feeder <input type="checkbox"/>	alarm <input type="checkbox"/>
Counter <input type="checkbox"/>	Paper lamp <input type="checkbox"/>	Blow <input type="checkbox"/>	Ma touqi <input type="checkbox"/>	Delivery lamp <input type="checkbox"/>
Suction motor <input type="checkbox"/>	Vibration <input type="checkbox"/>	Inching light <input type="checkbox"/>	Running light <input type="checkbox"/>	Waste discharge <input type="checkbox"/>
Conveying direction <input type="checkbox"/>	Alarm clear <input type="checkbox"/>	Lifting motor 1 <input type="checkbox"/>	Lifting motor 2 <input type="checkbox"/>	Enable <input type="checkbox"/>

Home

machine setting

speed setting

count setting

carrier setting

backfold setting

monitor

## Signal light

Number <b>5</b>	Saved Job Name <input type="text"/>	Current Job Name <input type="text"/>		File Browse 
Carrier Position 0.0	<b>0</b>	carrier encoder ok	Alarm Reset	Encoder Monitor 
		Auto all carrier		Back 
	13			2
19	16	11	8	5
18	15	10	7	4
17	14	9	6	3
	12			1
17-19	12-16	9-11	6-8	3-5
				1-2

Number: saved job number

Saved job name: Name of the currently selected file

Current job name: Name of the file currently in use

Carrier position: carrier position

Auto all carrier: all carrier auto moving

File browse: enter the page




Encoder monitor: usually no need setup by user

Back:

## Carrier Remember File

✖

Using File Name		Num.	Selected File Name
		5	
0		7	
1		8	
2		9	
3		10	
4		11	
5		12	
6		13	

 Save File  
 Use File  
 Delete

Using file name: Name of the file currently in use

Selected file name: Name of the currently selected file

Save file: enter page to save the job

Use file: enter page to find the job

Delete: delete the job

Up page:

Down page:


### Carrier Remember File ✖


	Using File Name	Num.	Selected File Name
0			
1			
2			
3			
4			
5		12	
6		13	


Cover the file by the new?

YES

No

  
 Save File

  
 Use File

  
 Delete

Up Page

Down Page

Cover the file by the new: Whether to save the box carrier position


### Carrier Remember File


✖


	Using File Name	Num.	Selected File Name
0			
1			
2			
3			
4			
5		12	
6		13	

Used the selected file ?

YES
NO

 Save File

 Use File

 Delete

Up Page

Down Page

Used the selected file: Used the selected file



### Carrier Remember File

✖


	Using File Name	Num.	Selected File Name
0			
1			
2			
3			
4			
5		12	
6		13	

Do you want to delete the file?


5

YES


NO



Save File



Use File



Delete

Up Page

Down Page

Do you want to delete the file: delete the file.

### 3-5 Introduction to the outside of the electrical box



- 1: Machine power switch
- 2: Fan
- 3: Remote control signal source
- 4: Buzzer
- 5: Fan

## Chapter Four Handling and installation

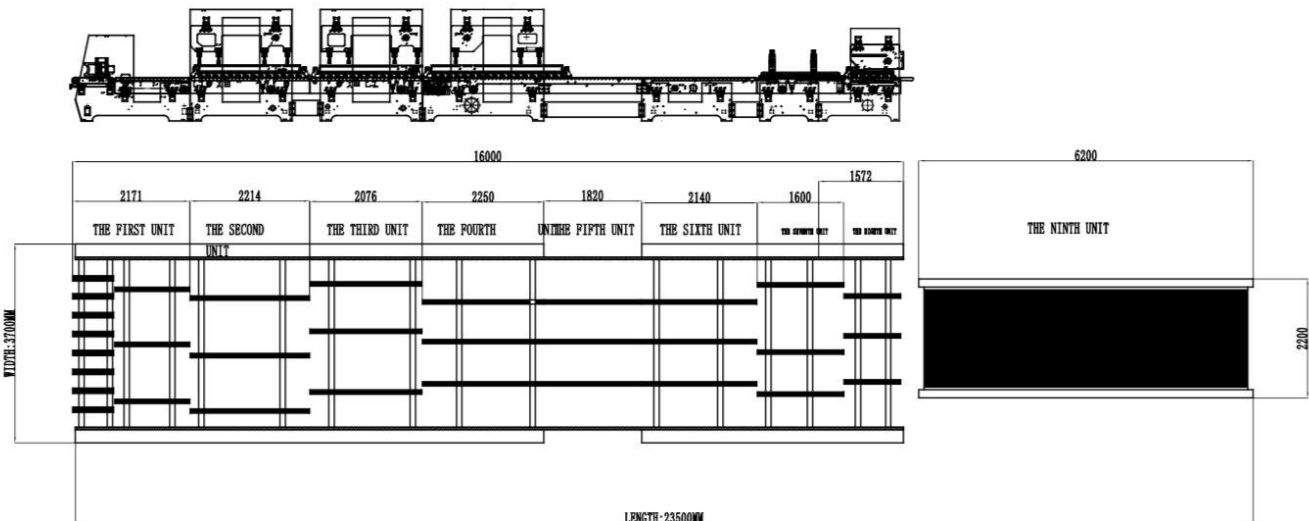
### 4-1 Surveying terrain and positioning

1. According to the "foundation plan", reserve the required space in the factory building, and the yellow safety line on the ground, within the range of 1-1.5 meters from the machine.
2. After the installation personnel arrive at the site, they must first survey the terrain, study the path that the consignment machine must travel, and remove obstacles along the way.

### 4-2 Handling

1. The machine shipped in three 40' container.
2. Prepare wire rope on the day of installation, Lift out the machine for positioning with a crane or forklift.

### 4. Floor plan



#### 4-3 Installation Precautions

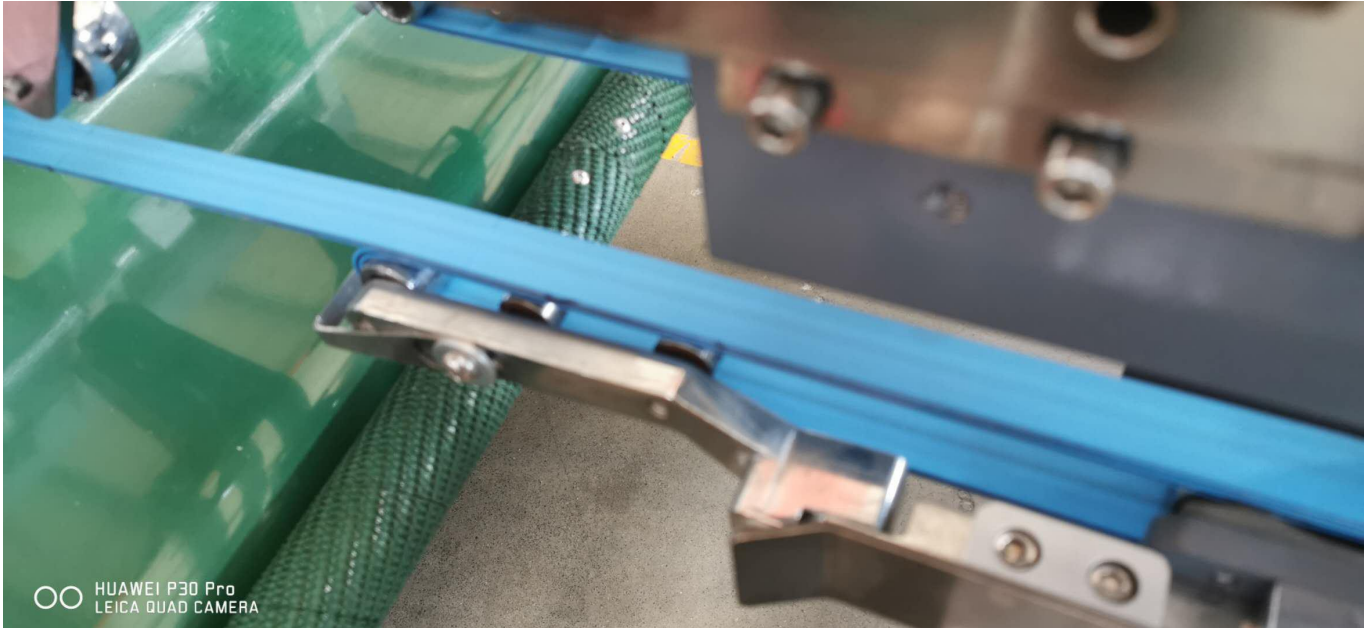
1. Install this machine, please make sure that all parts are placed correctly, As shown in "Floor Plan", Connect the machine.  
Tools for connection and fixing screws, In the accessories box.
2. Before installation, check whether there are any missing items, If there is any missing, please contact us immediately.
3. Wires are connected as indicated, The level of the machine needs to be corrected.
4. Make sure to check all switches, And make sure all are turned off, Then connect the main machine and the main control box to each other
5. Please connect the power supply to the power port of the machine, and the installer will use an electric meter to measure whether the voltage is about  $380V \pm 5\%$ . After confirming the voltage, you can turn on the switch and prepare to test the motor direction.
6. After confirming the direction of the motor, press the start-up preparation button and hear an alarm sound. Press the inching button lightly to test whether the belt is jammed with other things.  
If the trial run is correct, press to run and observe the speed value.

#### 4-4 Installation of Mainframe

1. The installation sequence of the machine is to install the mainframe and then the conveying part.
2. The front section of the machine (mainframe-1) is fixed as reference, and then to make the back section slowly moves towards to the front section. When the screw hole is aligned, screw on first but not necessarily tight.
3. Horizontal correction first finds the highest point, then finds the position with a large drop height, shores the drop, then corrects the level from the same side, next corrects the other side.
4. Fix the connecting plate, tighten the screws, and fix the horizontal nut after checking the level again.

#### 4-5 Press section

1. The main machine must be installed before the press section is installed.
2. Place the press section behind the main machine



#### Press section

1. Connect the line from the main machine to press section.
2. After the connection is completed, press the manual button to test whether the conveyor is in operation.

## Chapter 5 Paper Feeding Operation

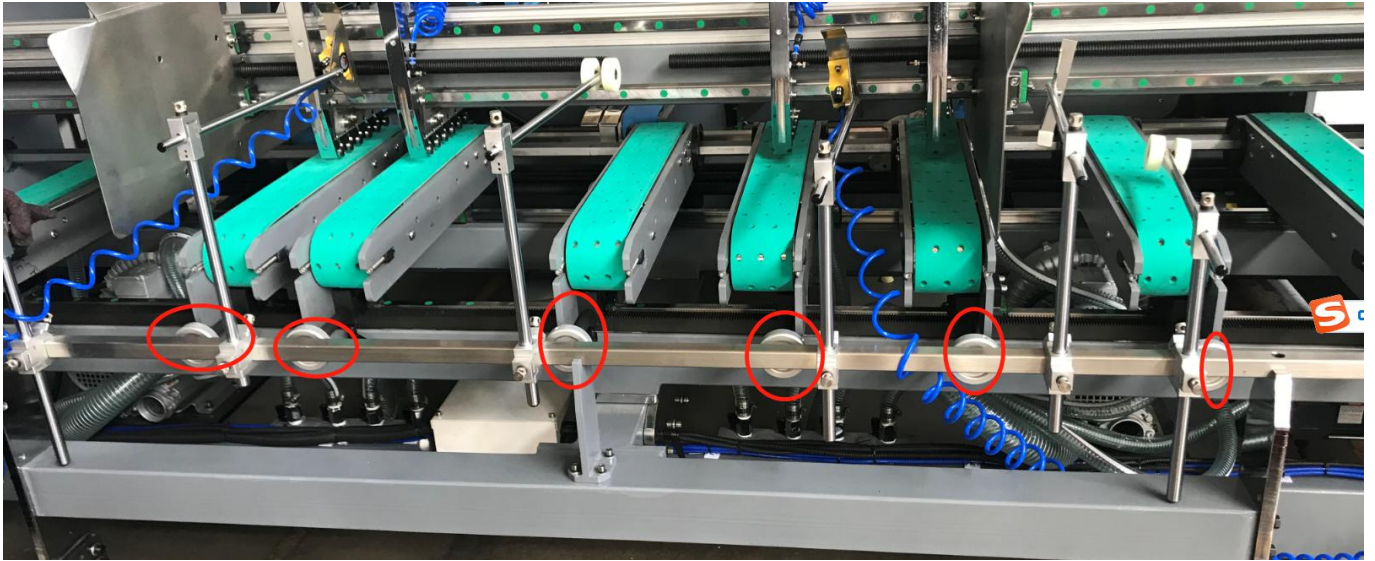
### 5-1 Safety precautions

1. Please confirm the position of the emergency stop switch before operation.
2. Be familiar with the meaning of all warning signs.
3. Understand the operation methods and functions of all switches and buttons.
4. Only after confirming that the machine is stopped, then you can reach into the machine for adjustment
5. Must know how to cut off the main power supply.
6. When the user replaces, please pass the current state of the machine to the next operator, and confirm that there is no abnormality in the machine.
7. Make sure that all emergency stop switches can operate normally.
8. Confirm that there are no tools, etc. in the machine.
9. The operator must be neatly dressed, do not lead the tie, the sleeves must be buttoned up, and there must be no overhangs on the body to prevent the machine from being caught.
10. Nothing should be placed on the operator's jacket pocket to prevent falling into the machine when bending down.
11. When you feel tired or uncomfortable, please stop operating this machine.
12. Confirm that no one else is in the machine.

### 5-2 Adjusting the rail

1. The role of the rail is to support and feed the paper.
2. When the position of the rail is incorrect, there will be abnormal feeding.
3. When adjusting the position of the rail, the paper width should be used as the reference.
4. When adjusting, you can put a piece of paper first to test the correctness of the position.
5. Adjust the rail method, as shown.

To rotate the shaft, Clockwise or counterclockwise to move the rail left and right, After adjustment, fix the knob so that its position does not move.



### 5-3 Adjust the side panel

Adjust the side panel(left and right side)

1. Depending on the width of the paper, Adjust the side panel.



## Adjust the feeding knife.

1. When adjust the feeding knife, You can put a piece of paper in position first, to facilitate the benchmark of the gap.
2. Adjust the two feeding knife in place, as the picture shows.
3. Loosen the fixed handle behind the feeding knife.
4. Adjust the two feeding knife in place, Fixed feeding knife position.
5. When adjusting the gap, Turn the top knob.
6. The gap should be kept that one piece of paper can pass, but two pieces of paper cannot pass.
7. If the gap is too small, there will be paper feeding difficulties.
8. The gap is too large, there will be overlapping paper feeding.





#### 5-4 Put paper

1. When put paper on the feeding section, put them in a pile.
2. After putting the first pile of paper, you can adjust the tilt Angle of the paper, Loosen the screws on the pole, adjust the angle of the pole. As shown in figure, after adjusting, tighten the screws. If you need to replace a longer paper, No need to adjust the pole one by one, Just loosen the fixing screw, can pull off the support frame, Adjust to the proper position and fix, As shown.



## 5-5 Adjust paper spacing

1. When feeding paper continuously, The size of the paper gap may affect the efficiency of the glue box. Therefore, we must make appropriate adjustments.
2. Adjust the speed of the paper feeding section. The higher the speed, the denser the paper. The slower the paper feeding section, the sparse paper month.
3. The spacing is too small, the two sheets of paper before and after may interfere with each other, need to increase the spacing.
4. The distance is too large, the efficiency becomes slow, need to accelerate.



## Chapter Six Alignment operation

### 6-1 Safety precautions

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11. When you feel tired or uncomfortable, please stop operating this machine.
12. Confirm that no one else is in the machine.

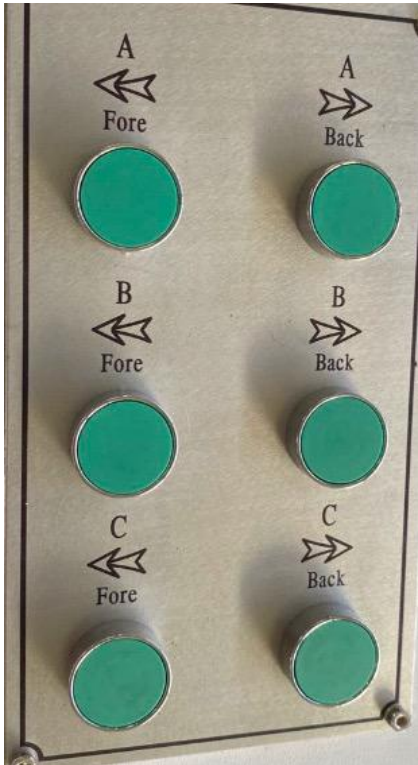
## 6-2 Angle adjustment of guide wheel seat

1. The adjustment angle is mainly to make the paper alignment, As shown

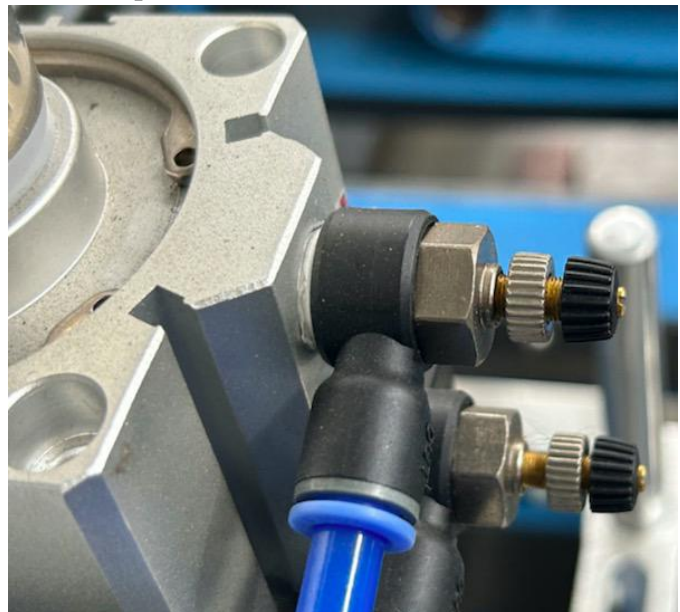
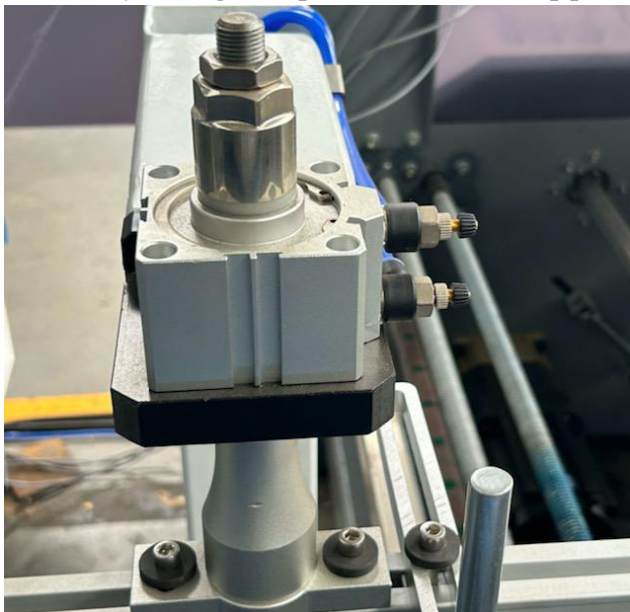


### 6-3 alignment section rail Position adjustment

1. Make sure the machine is stopped, Find the buttons to move the guide on both sides of the machine (This is the mode of moving the rail with the motor) .



### 6-4 Adjusting the position of the upper pressure plate



## 6-5 Adjustment of the paper guide bridge

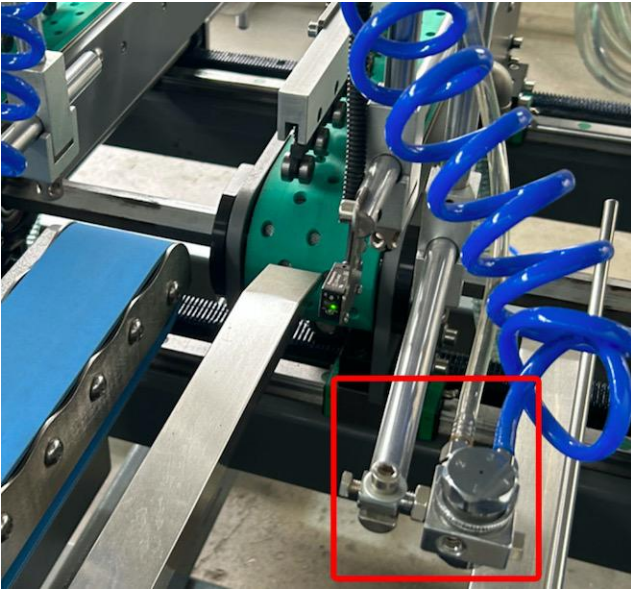
1. Fixing screw for bridge of alignment section, Use a magnet, can be pulled up to move left and right



## 6-6 Alignment section belt adjustment



6-7 Spray water



Soften paper for easier creasing

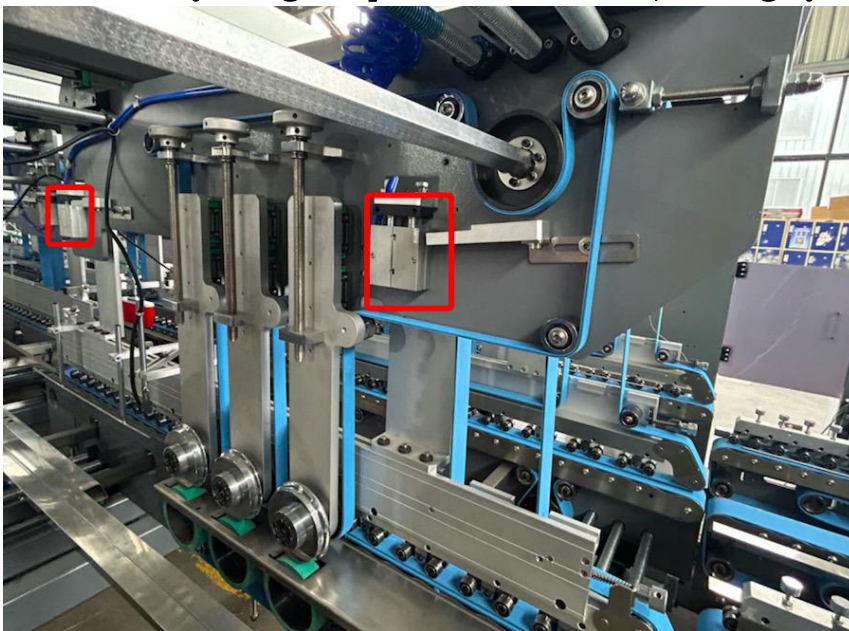
## Chapter VII Prefolding Operation

### 7-1 Safety precautions

1. Please confirm the position of the emergency stop switch before operation.
2. Be familiar with the meaning of all warning signs.
3. Understand the operation methods and functions of all switches and buttons.
4. Only after confirming that the machine is stopped, then you can reach into the machine for adjustment
5. Must know how to cut off the main power supply.
6. When the user replaces, please pass the current state of the machine to the next operator, and confirm that there is no abnormality in the machine.
7. Make sure that all emergency stop switches can operate normally.
8. Confirm that there are no tools, etc. in the machine.
9. The operator must be neatly dressed, do not lead the tie, the sleeves must be buttoned up, and there must be no overhangs on the body to prevent the machine from being caught.
10. Nothing should be placed on the operator's jacket pocket to prevent falling into the machine when bending down.
11. When you feel tired or uncomfortable, please stop operating this machine.
12. Confirm that no one else is in the machine.

### 7-2 Prefold section Position adjustment

1. Before adjusting the position of the rail, Lifting cylinder.

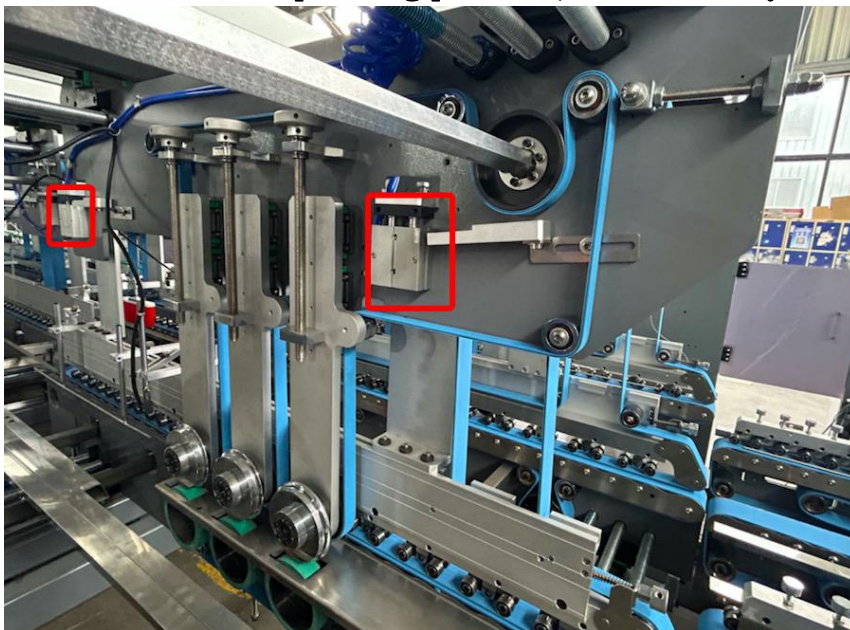




2. Make sure the machine is stopped, Find the buttons to move the guide on both sides of the machine (This is the mode of moving the rail with the motor) .

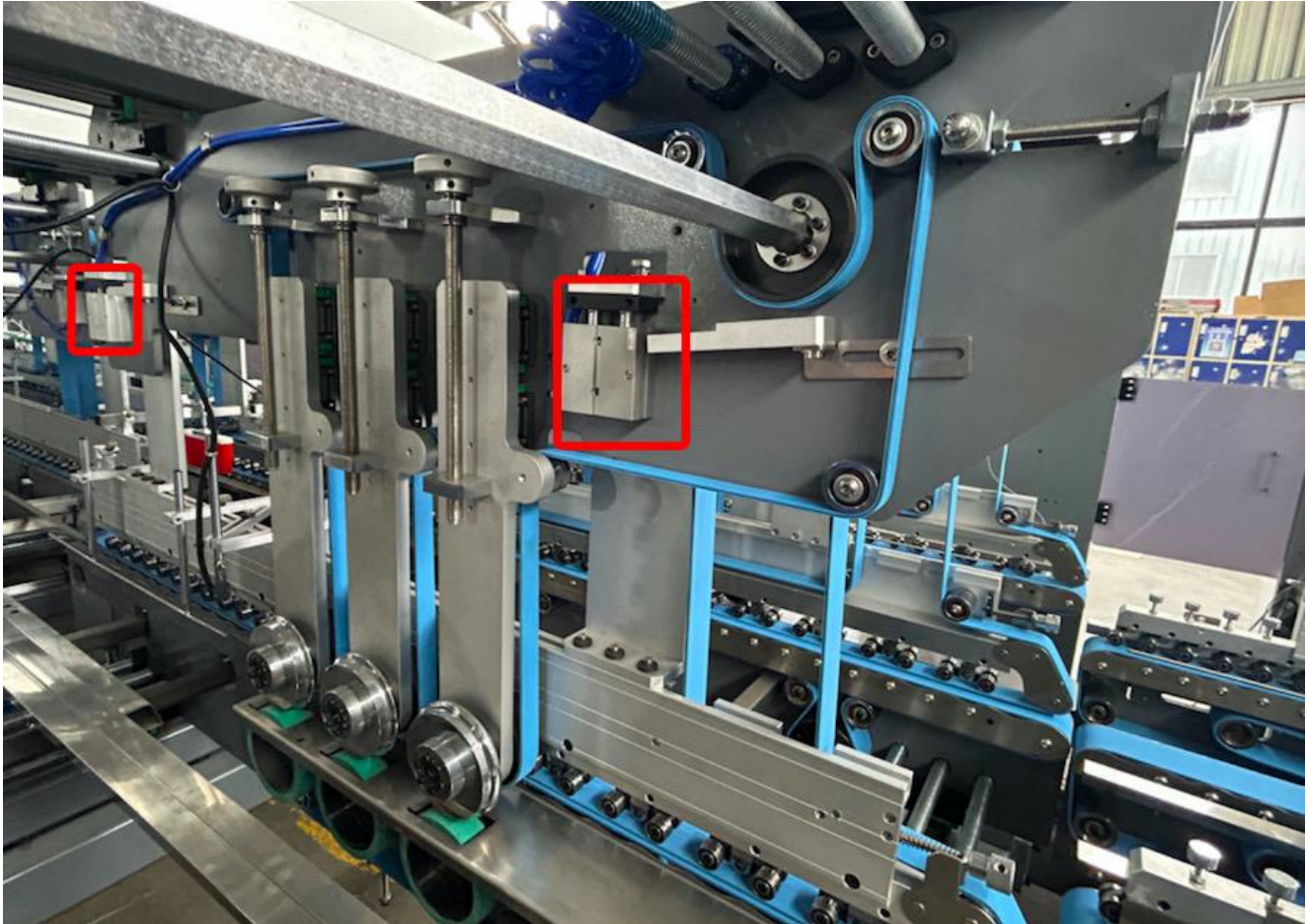


4. reach the corresponding position, Press the cylinder down



### 7-3 Adjusting the position of the upper pressure plate

1. The upper pressure plate can move left and right adjustment is a fine adjustment, Do not adjust if not necessary.

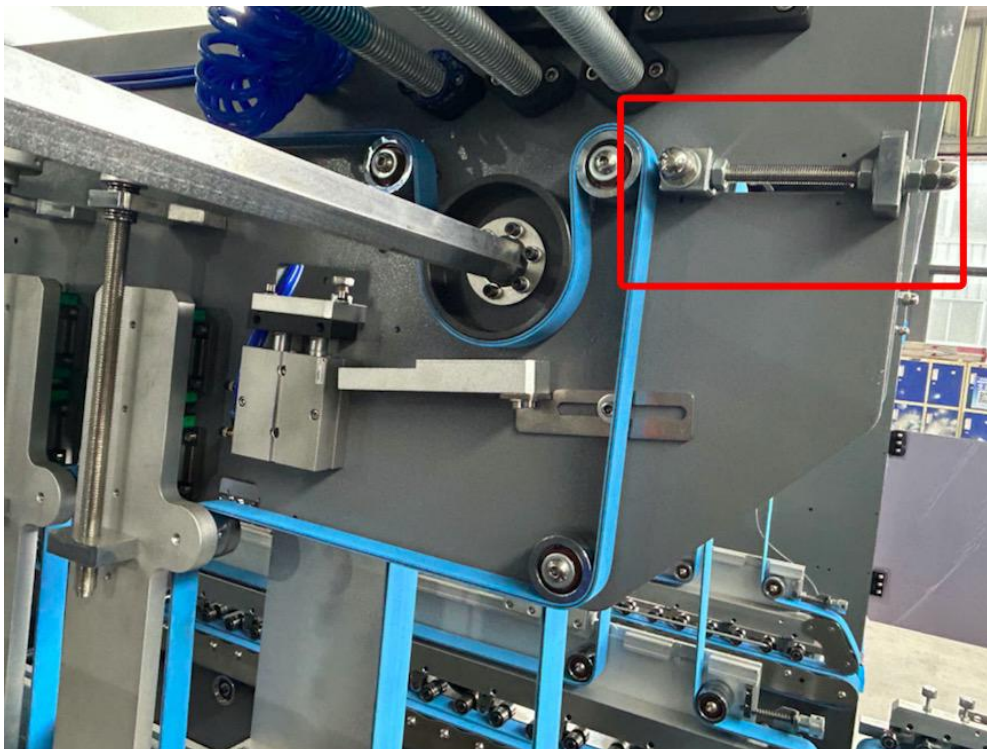


#### 7-4 Creasing right and left fold belt

7-4-1 If the paperboard creasing line is not good, can use the creasing wheel to improve.

7-4-2 The creasing wheel by motor drive. The pressure can be adjusted.

7-4-3 the belt can adjust by following photo



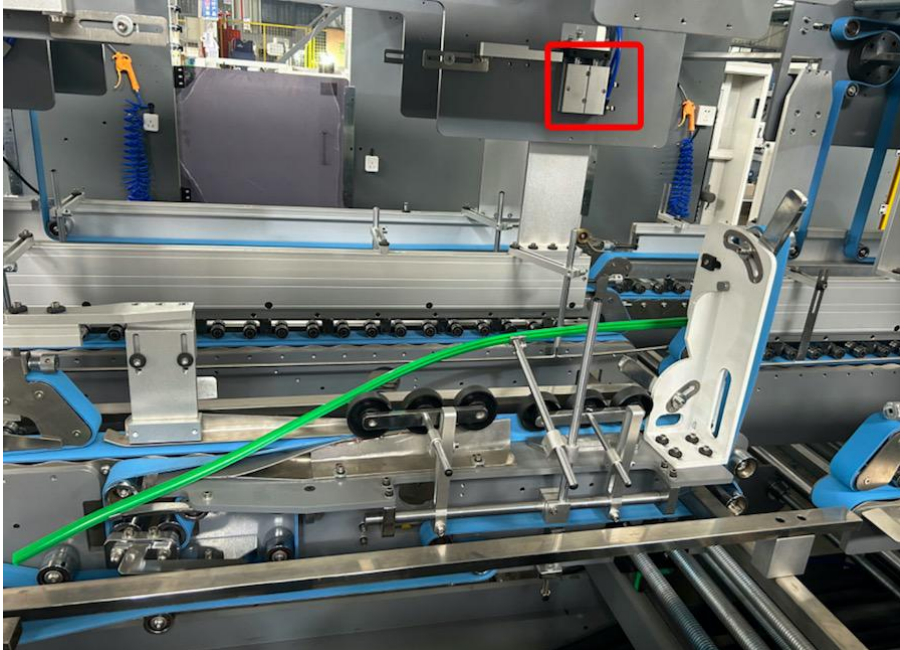
## Chapter 8 Lock bottom operation

### 8-1 Safety precautions

1. Please confirm the position of the emergency stop switch before operation.
2. Be familiar with the meaning of all warning signs.
3. Understand the operation methods and functions of all switches and buttons.
4. Only after confirming that the machine is stopped, then you can reach into the machine for adjustment
5. Must know how to cut off the main power supply.
6. When the user replaces, please pass the current state of the machine to the next operator, and confirm that there is no abnormality in the machine.
7. Make sure that all emergency stop switches can operate normally.
8. Confirm that there are no tools, etc. in the machine.
9. The operator must be neatly dressed, do not lead the tie, the sleeves must be buttoned up, and there must be no overhangs on the body to prevent the machine from being caught.
10. Nothing should be placed on the operator's jacket pocket to prevent falling into the machine when bending down.
11. When you feel tired or uncomfortable, please stop operating this machine.
12. Confirm that no one else is in the machine.

### 8-2 Guide

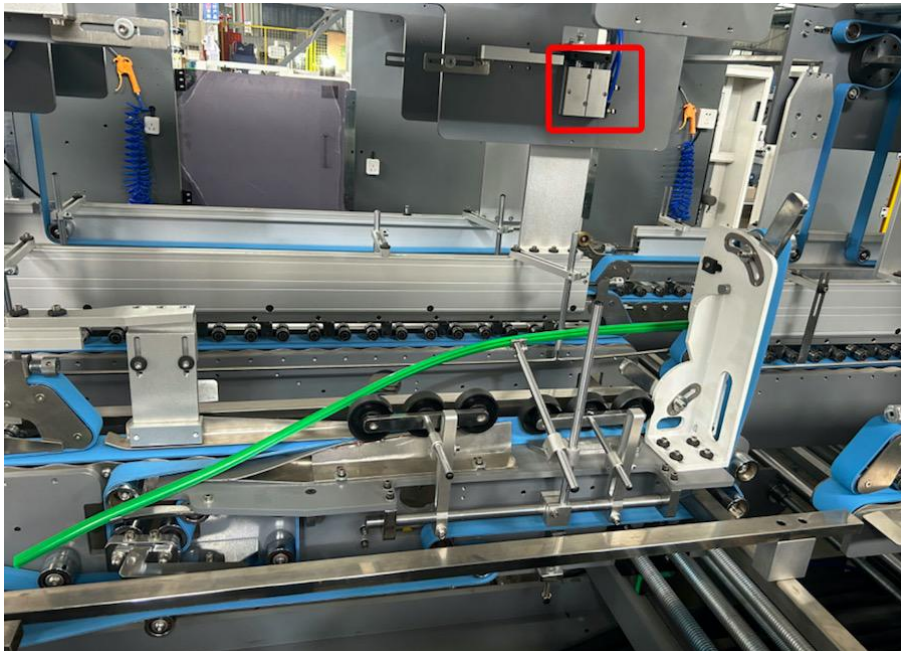
1. Before adjusting the position of the rail, Lifting cylinder.



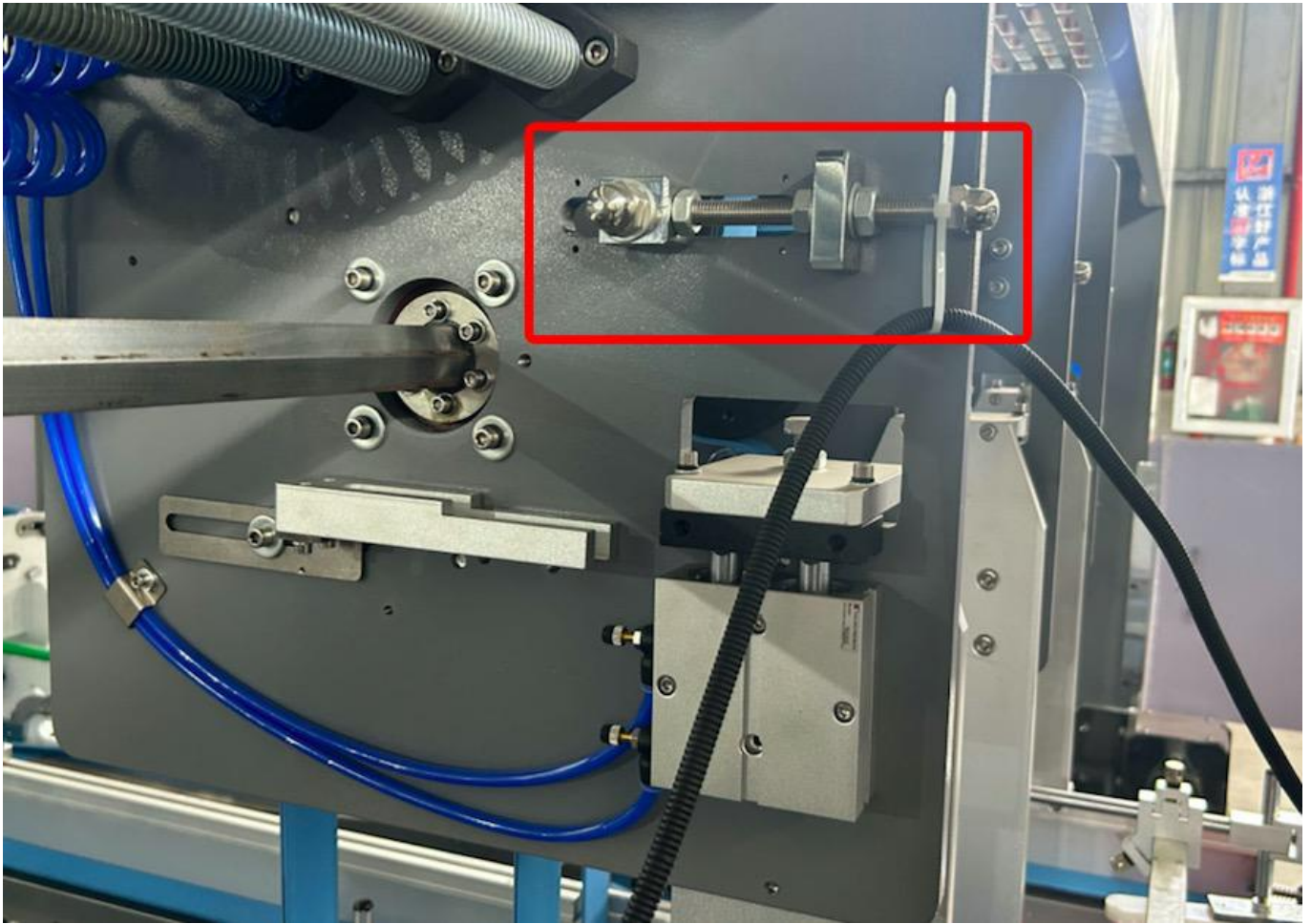
2. Make sure the machine is stopped, Find the buttons to move the guide on both sides of the machine (This is the mode of moving the rail with the motor) .



3. reach the corresponding position, Press the cylinder down



#### 4.adjust belt



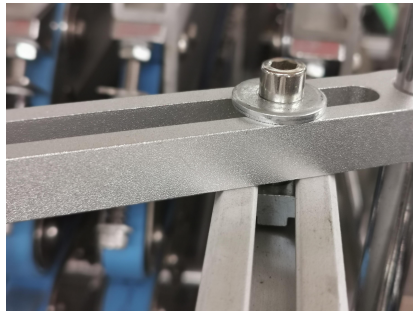
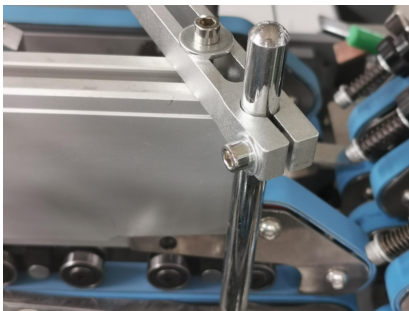
#### Operation of cold glue spraying system

##### Gun fixing method

1. First fix the spray gun at the position where you want to spray glue.
2. Adjust the up and down height of the spray gun and fix the pipeline.
3. For the adjustment of the specific spray system, see the manual of the spray system.

## 8-4 lock bottom Slider

1. The effect of the slider is to make the pasted place reversely folded when hooking the bottom, as shown 8-4-1
2. Loosen screw A to adjust the distance before and after, as shown 8-4-2
3. Loosen screw B to adjust left and right distance, as shown 8-4-3
4. Loosen screw C to adjust up and down distance, as shown 8-4-4
5. Slider correction needs to align the center of the upper and lower guide wheels behind the folding back plate, If due to the size of the box, you can adjust the entire hook bottom assembly forward or backward.



### 8-5 Hook bottom component and distance adjustment

1.The height distance between the hook and the operating belt, It can be adjusted by screw A in the picture.

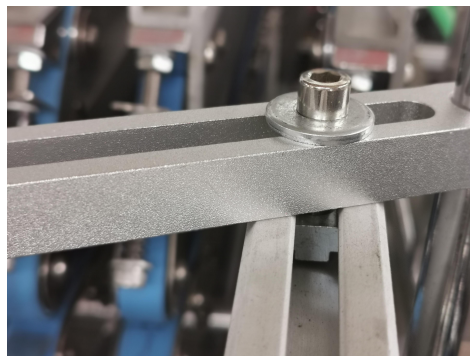
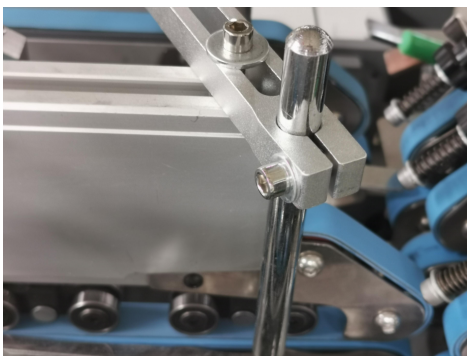
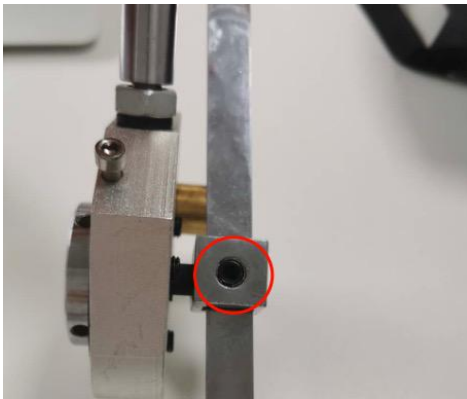
2.Angle between bottom hook and operating belt, Can be adjusted via the screw B shown.

3.The height of the entire group of hook bottom components, It can be adjusted by the screw C shown.

4.The left and right distance of the whole group of hook bottom components, It can be adjusted by the screw D shown.

5.The front and back distance of the whole group of hook bottom components, Can be adjusted via the screw E shown

Note: Each adjustment screw must be tightened after adjustment.





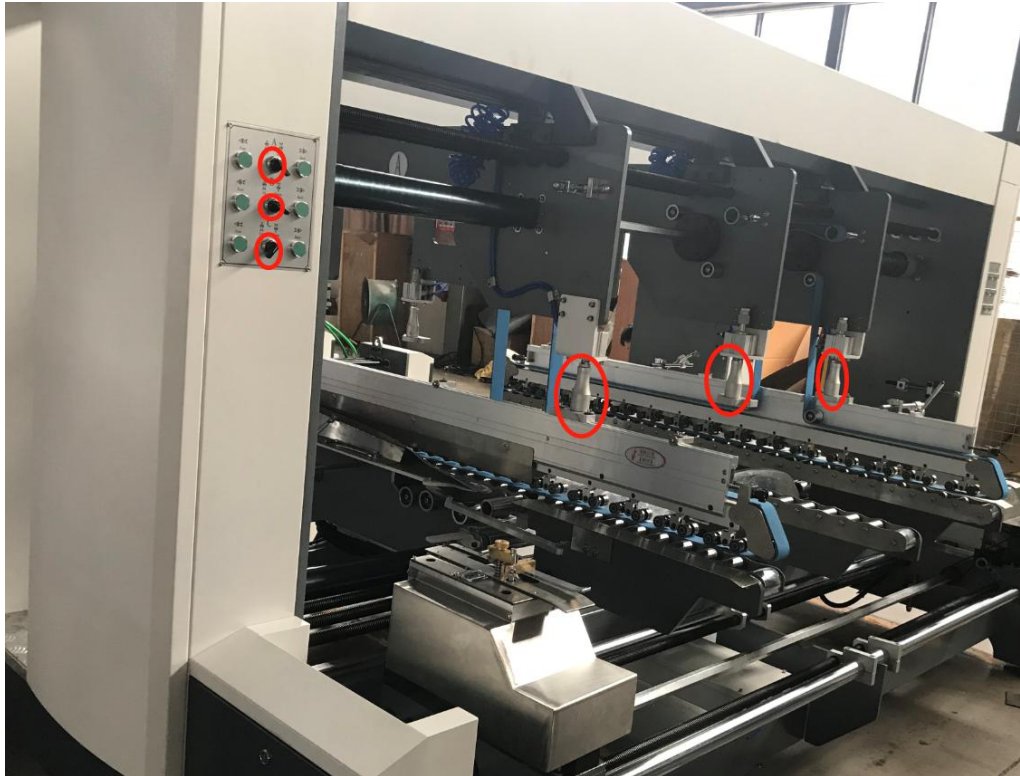
## Chapter 9 Folding section operation

### 9-1 Safety precautions

1. Please confirm the position of the emergency stop switch before operation.
2. Be familiar with the meaning of all warning signs.
3. Understand the operation methods and functions of all switches and buttons.
4. Only after confirming that the machine is stopped, then you can reach into the machine for adjustment
5. Must know how to cut off the main power supply.
6. When the user replaces, please pass the current state of the machine to the next operator, and confirm that there is no abnormality in the machine.
7. Make sure that all emergency stop switches can operate normally.
8. Confirm that there are no tools, etc. in the machine.
9. The operator must be neatly dressed, do not lead the tie, the sleeves must be buttoned up, and there must be no overhangs on the body to prevent the machine from being caught.
10. Nothing should be placed on the operator's jacket pocket to prevent falling into the machine when bending down.
11. When you feel tired or uncomfortable, please stop operating this machine.
12. Confirm that no one else is in the machine.

## 9-2 Adjust carrier(guide)

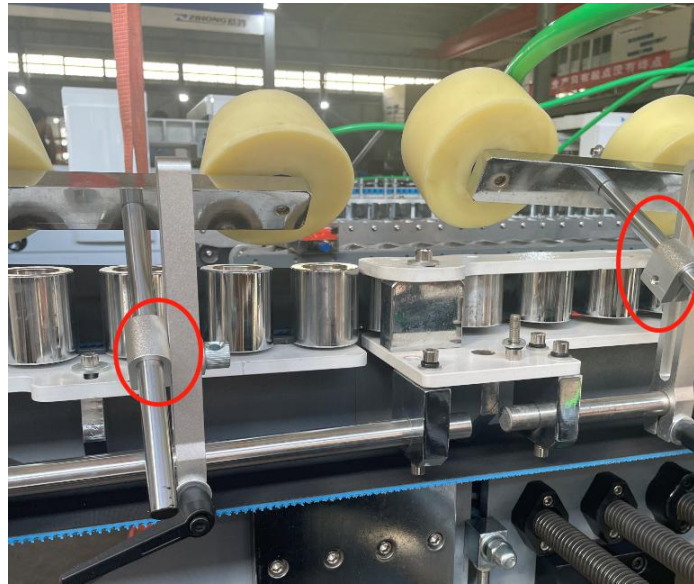
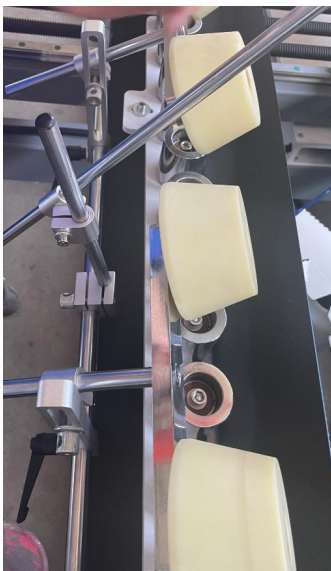
1. Before adjusting the position of the rail, Lifting cylinder. as shown
2. Make sure the machine is stopped, Find the buttons to move the guide on both sides of the machine (This is the mode of moving the rail with the motor) .



3. reach the corresponding position, Press the cylinder down

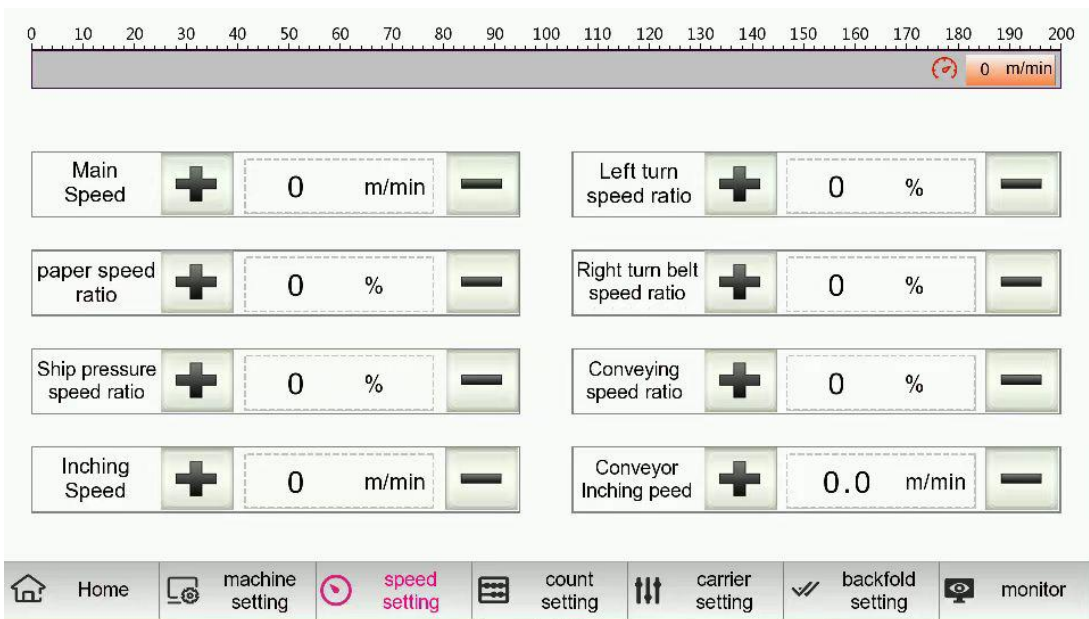
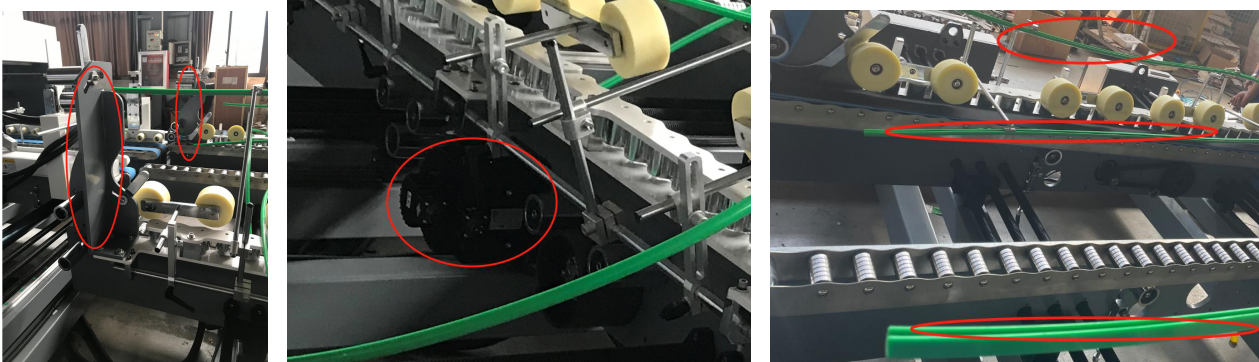
### 9-3 Installation and operation instructions of folding belt

1. The function of folding belt is to make the side of the paper be folded inward step by step, as shown 9-3-1, 9-3-2, 9-3-3.
2. Please follow the step by step principle when adjusting the folding belt, Don't make the fold belt to make a big angle change.
3. The method of adjusting the folding belt is to adjust the position of each pressure roller, as shown.
4. The angle of the pressure roller can be adjusted by loosening the upper screw, as shown.
5. After adjustment, tighten all screws and bolts.



### Left and right folding belt speed adjustment

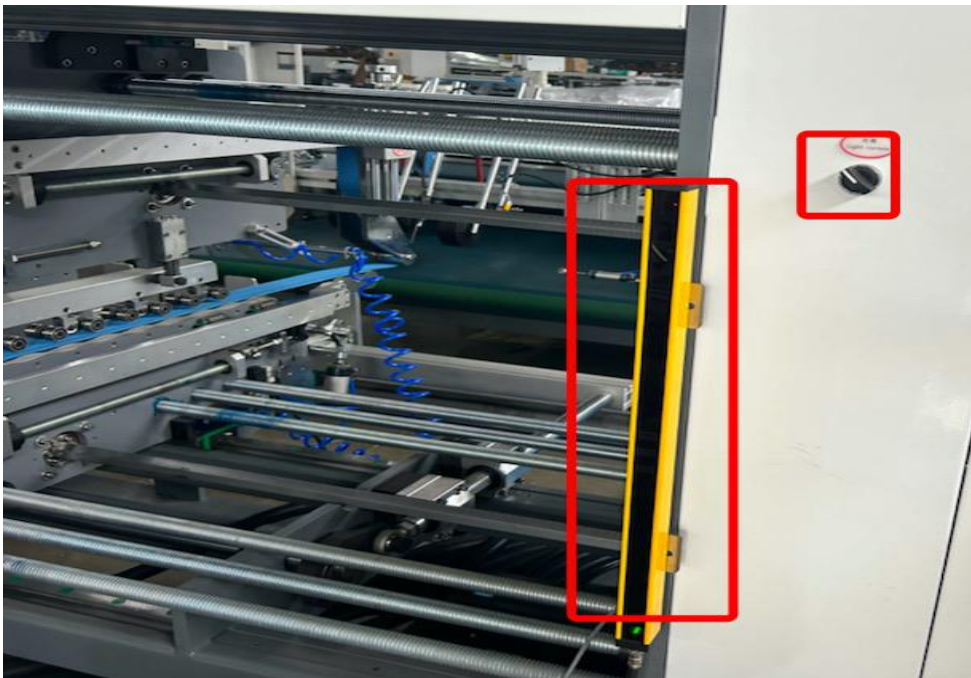
1. The amount of folding that may be generated when folding this box is inaccurate, Therefore, it is necessary to add a set of servo system to the left and right folding belts, the speed of the belt can be adjusted.
2. When adjusting, the front and back positions of the left and right sides after the paper is folded, If the paper on the left is too long, It means that the left board folding speed is faster, On the contrary, the right board is faster.
3. find the screen page, adjust the valve, usually both are “3200”



### Folding auxiliary press box strip

1. The length of the fold belt required for this fold may be very long, The folding belt cannot be completely covered, So need an auxiliary press box strip.
2. Loosen the upper screw to adjust the angle and height, as shown 9-3-2.

## 9-4 Safety light curtain



## Chapter 10 Trombone section operation

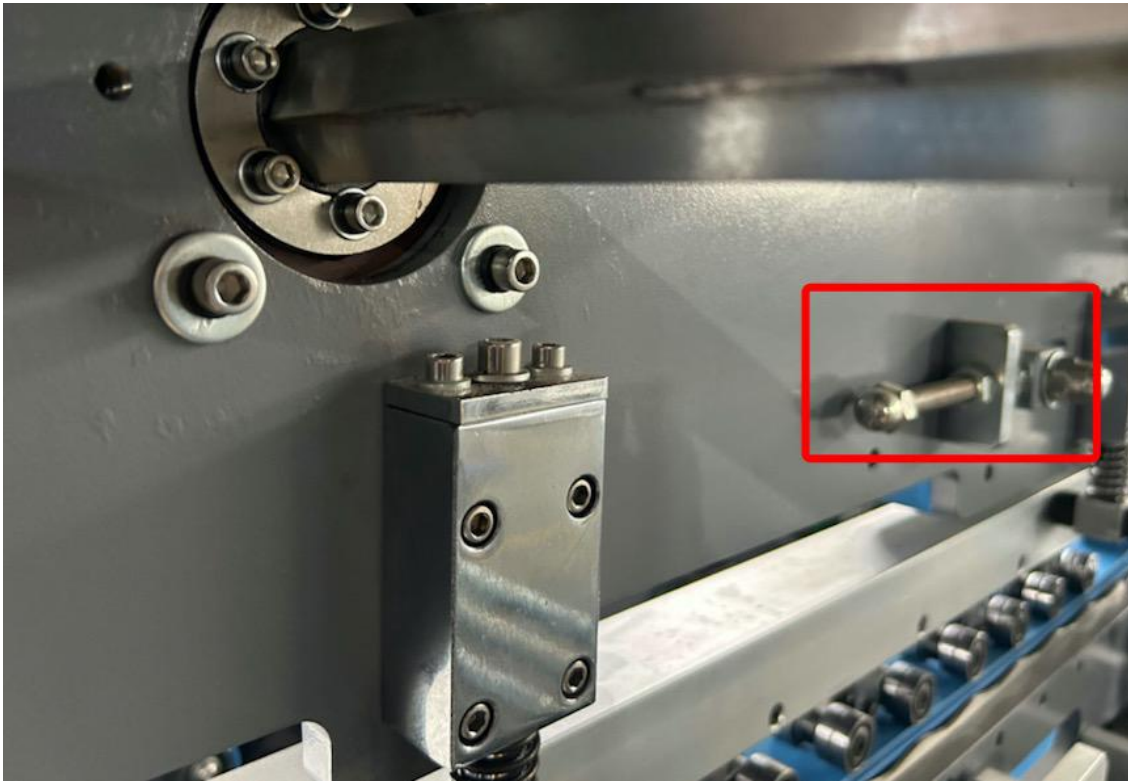
### 10-1 Safety precautions

1. Please confirm the position of the emergency stop switch before operation.
2. Be familiar with the meaning of all warning signs.
3. Understand the operation methods and functions of all switches and buttons.
4. Only after confirming that the machine is stopped, then you can reach into the machine for adjustment
5. Must know how to cut off the main power supply.
6. When the user replaces, please pass the current state of the machine to the next operator, and confirm that there is no abnormality in the machine.
7. Make sure that all emergency stop switches can operate normally.
8. Confirm that there are no tools, etc. in the machine.
9. The operator must be neatly dressed, do not lead the tie, the sleeves must be buttoned up, and there must be no overhangs on the body to prevent the machine from being caught.
10. Nothing should be placed on the operator's jacket pocket to prevent falling into the machine when bending down.
11. When you feel tired or uncomfortable, please stop operating this machine.
12. Confirm that no one else is in the machine.

## 10-2 Adjust carrier(guide)



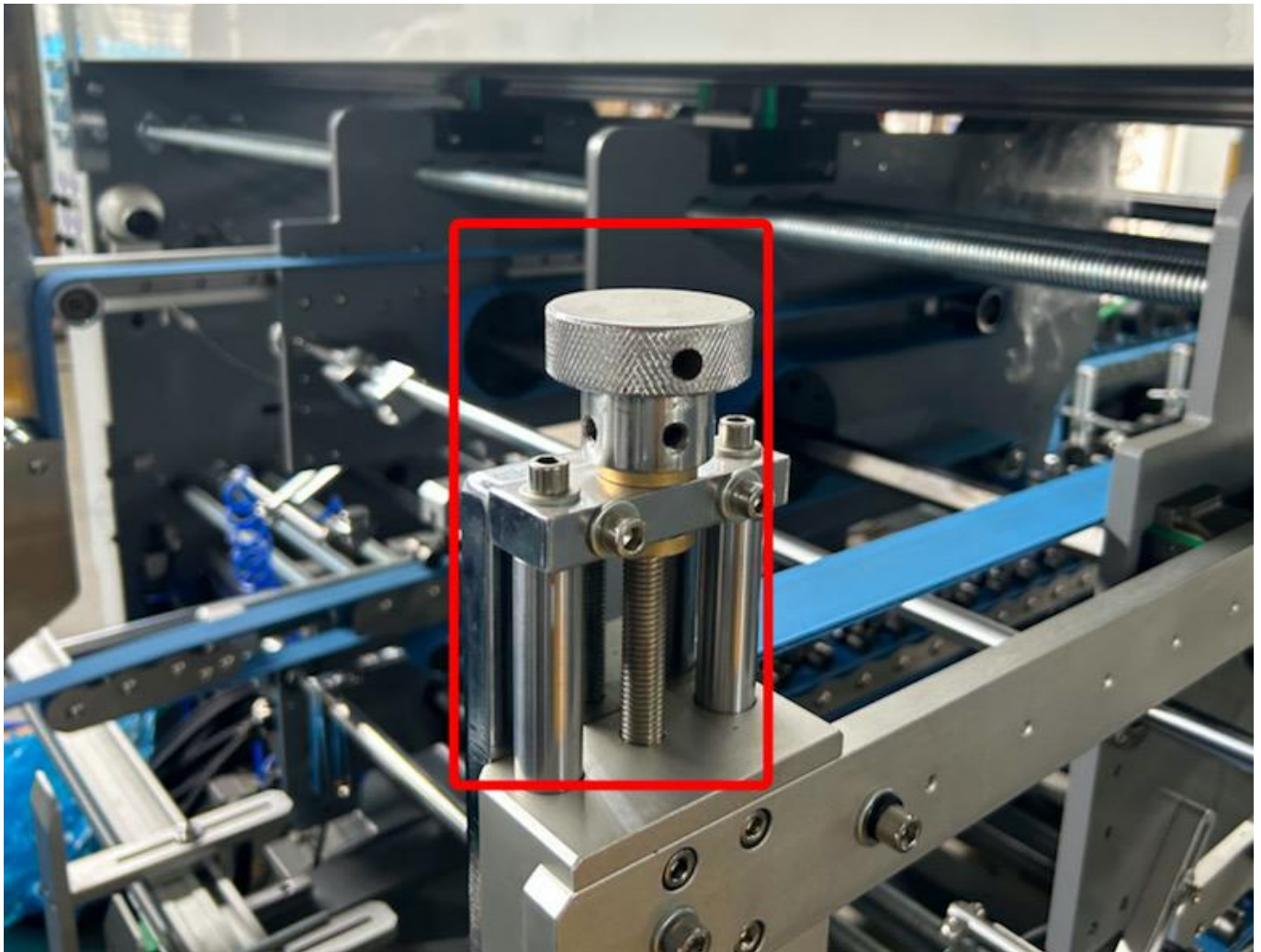
### 10-3 belt adjust



Adjust the height and length of the upper pressure belt



1. The upper rotating handle can adjust the height of the upper belt, as shown, 10-3-1



2. Adjustable length of upper pressure belt, The rear needs to cooperate with the conveyor, Rear adjustment must loosen the screw, as shown 10-3-2

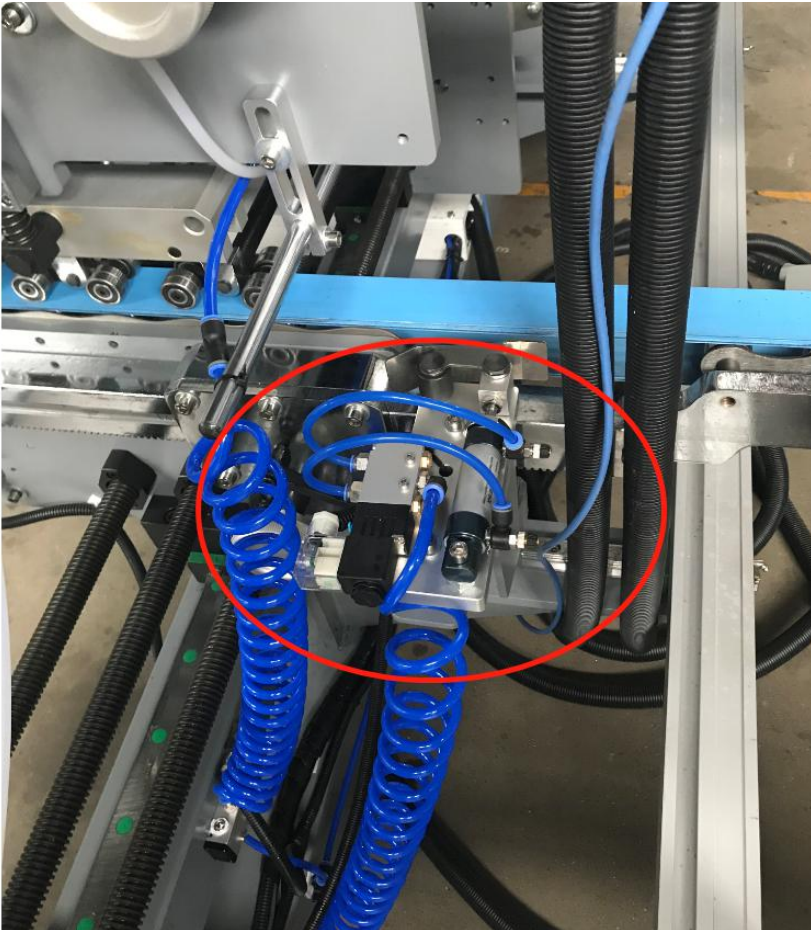
Front and back adjustment of the lower belt(by motor)

1. Adjustable position behind the lower belt, Adjust the distance before and after with the press section.

## 10-4 Auxiliary appliance operation

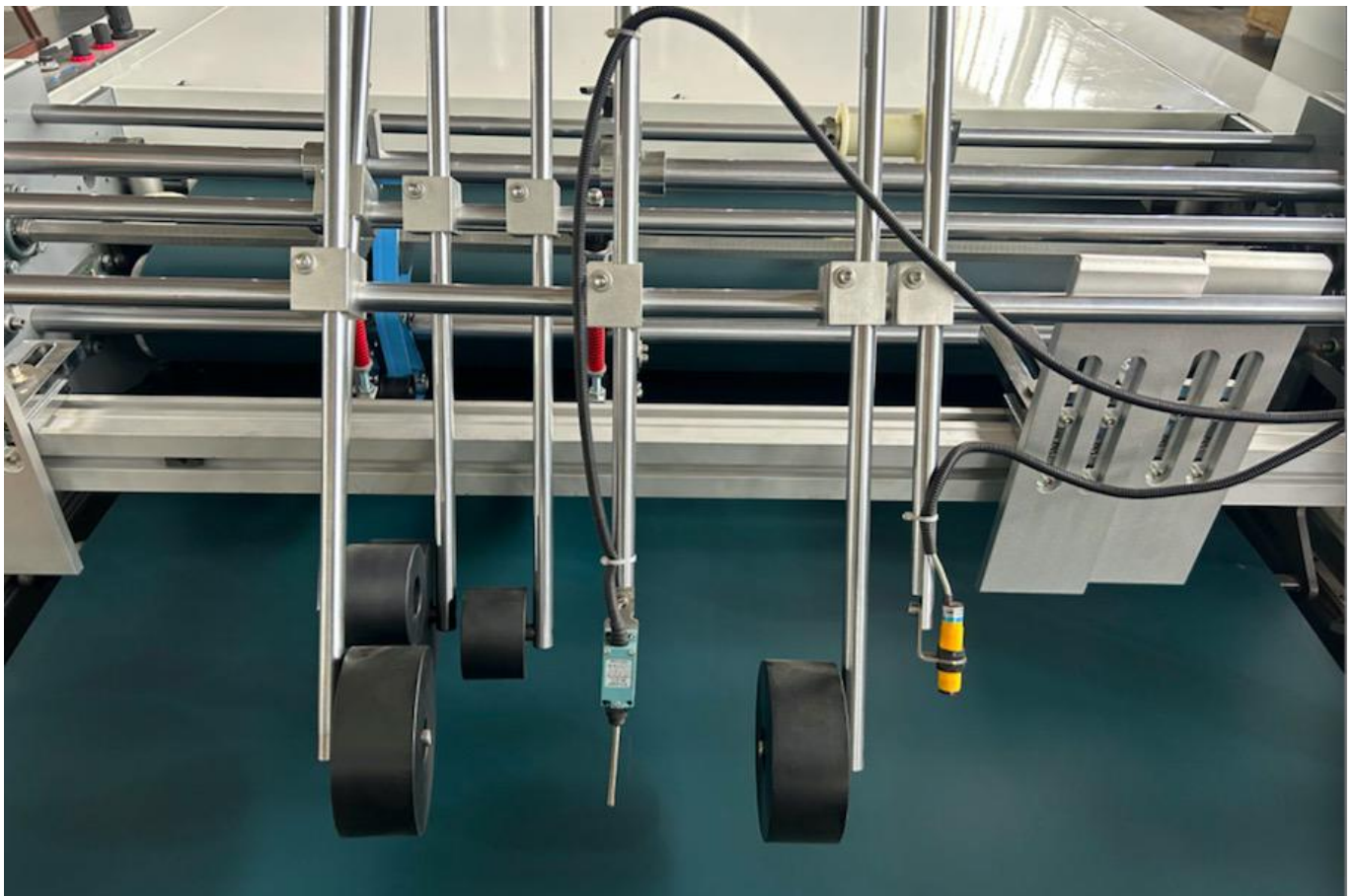
### Count kick paper cylinder

1. When the set number is reached, it is tilted on a piece of paper to distinguish.
2. Adjust the screws in Figure 10-4-1 to adjust other positions.

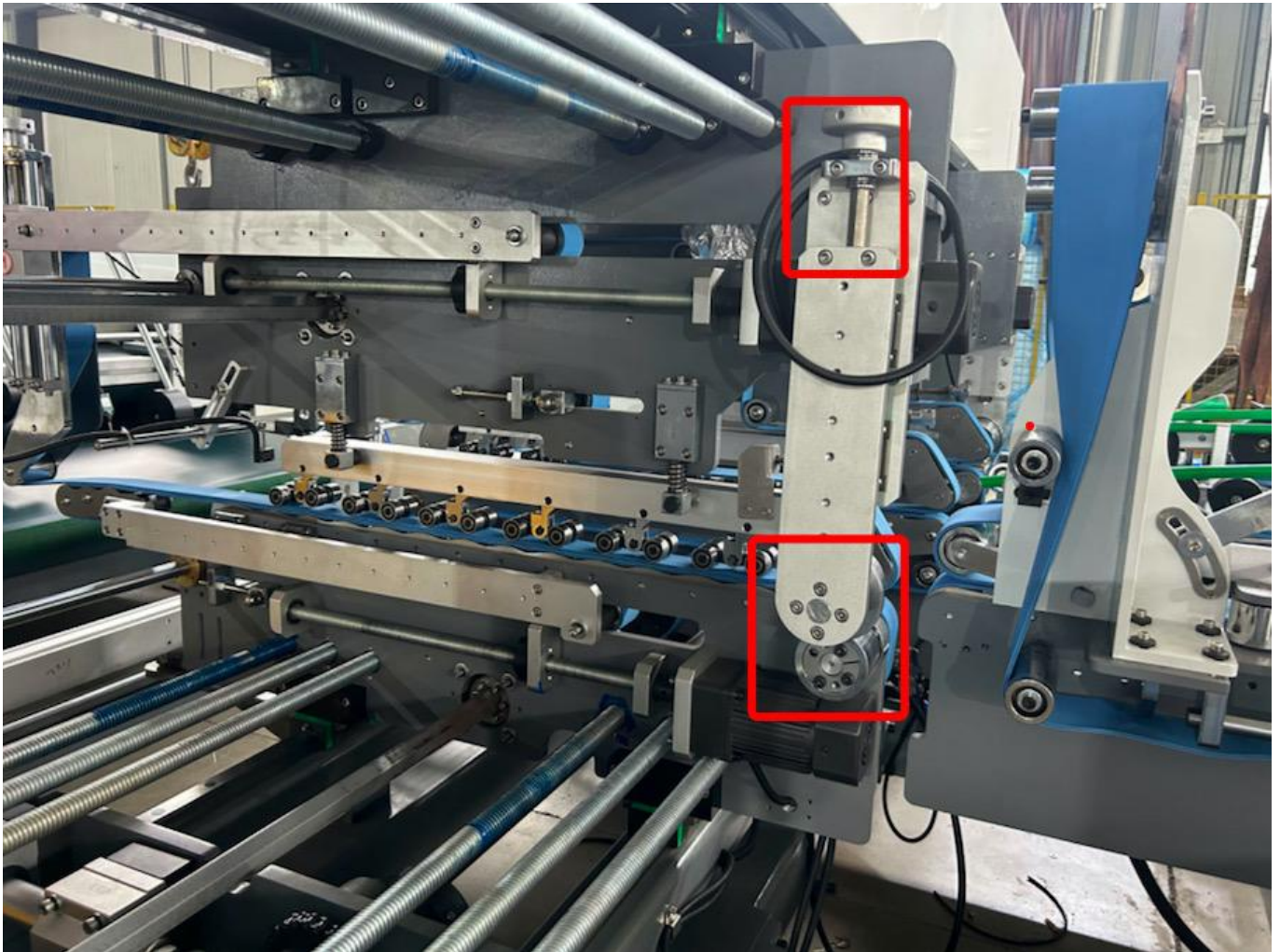


## Auxiliary roller

- 1.The auxiliary pressing roller is used for pressing the box between the auxiliary trombone section and the press section.
- 2.The angle and length of the pressure roller can be adjusted by loosening the screw in Figure 10-4-2.

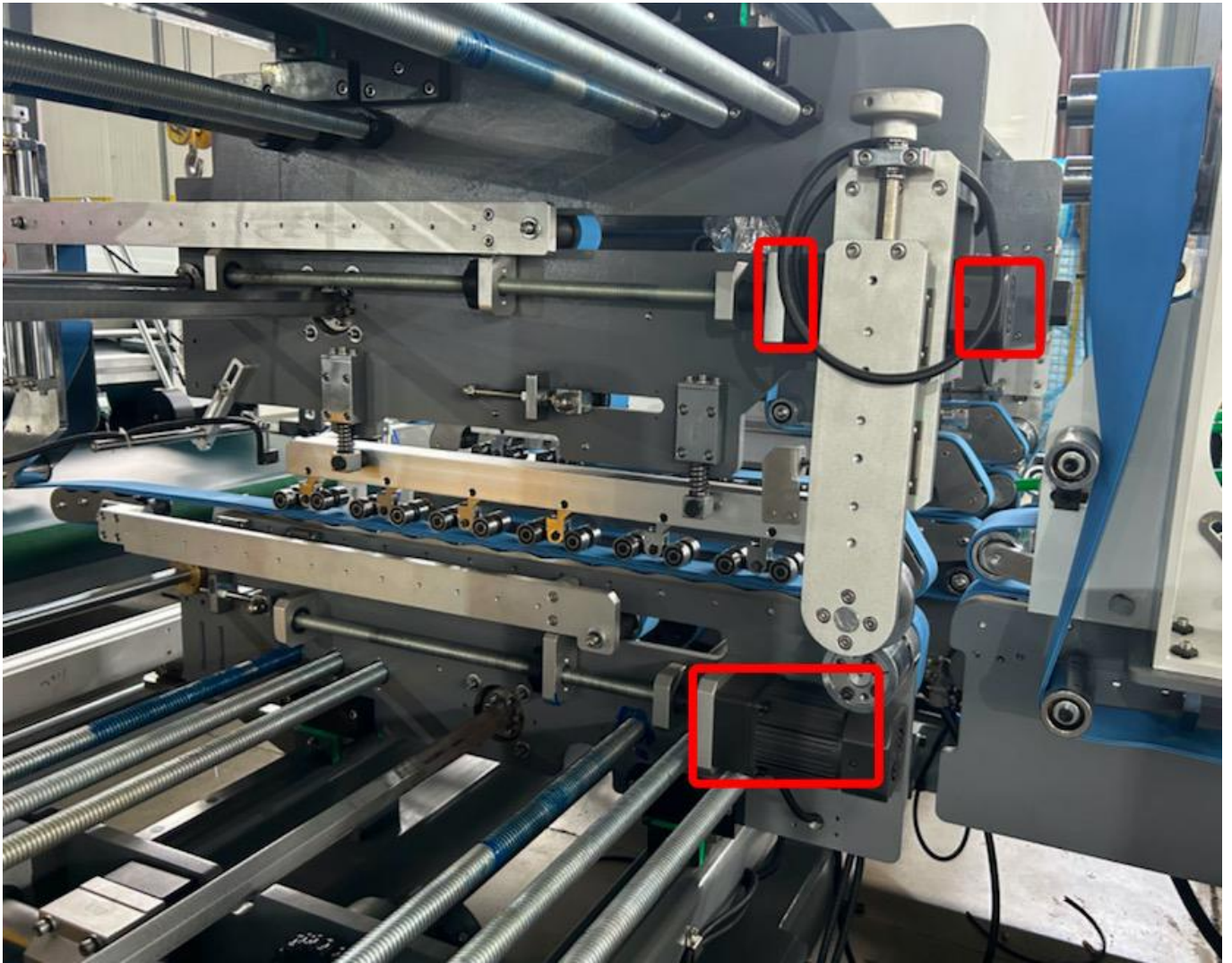


10-5



Press the the creasing line of No.2 and No.4, can help to forming the box.

10-5



Moving motor drive

## Chapter 11 Press section operation

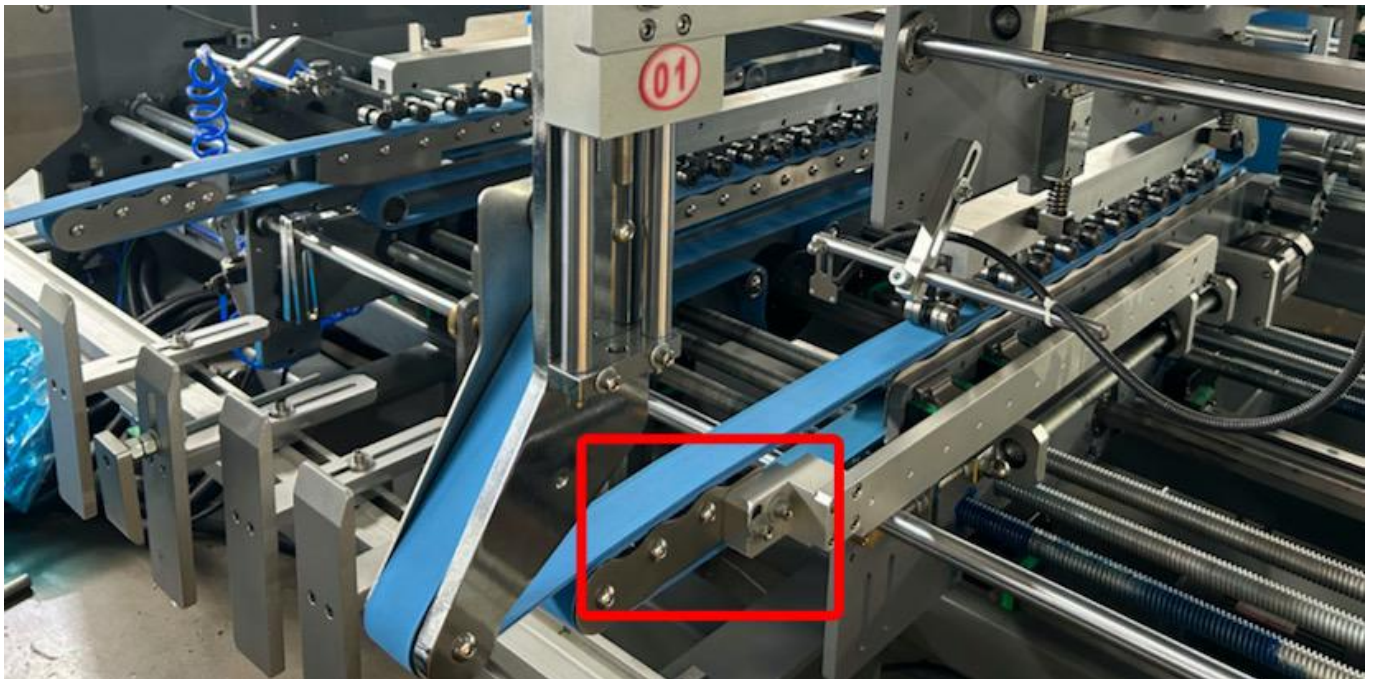
### 11-1 Safety precautions

1. Please confirm the position of the emergency stop switch before operation.
2. Be familiar with the meaning of all warning signs.
3. Understand the operation methods and functions of all switches and buttons.
4. Only after confirming that the machine is stopped, then you can reach into the machine for adjustment
5. Must know how to cut off the main power supply.
6. When the user replaces, please pass the current state of the machine to the next operator, and confirm that there is no abnormality in the machine.
7. Make sure that all emergency stop switches can operate normally.
8. Confirm that there are no tools, etc. in the machine.
9. The operator must be neatly dressed, do not lead the tie, the sleeves must be buttoned up, and there must be no overhangs on the body to prevent the machine from being caught.
10. Nothing should be placed on the operator's jacket pocket to prevent falling into the machine when bending down.
11. When you feel tired or uncomfortable, please stop operating this machine.
12. Confirm that no one else is in the machine.

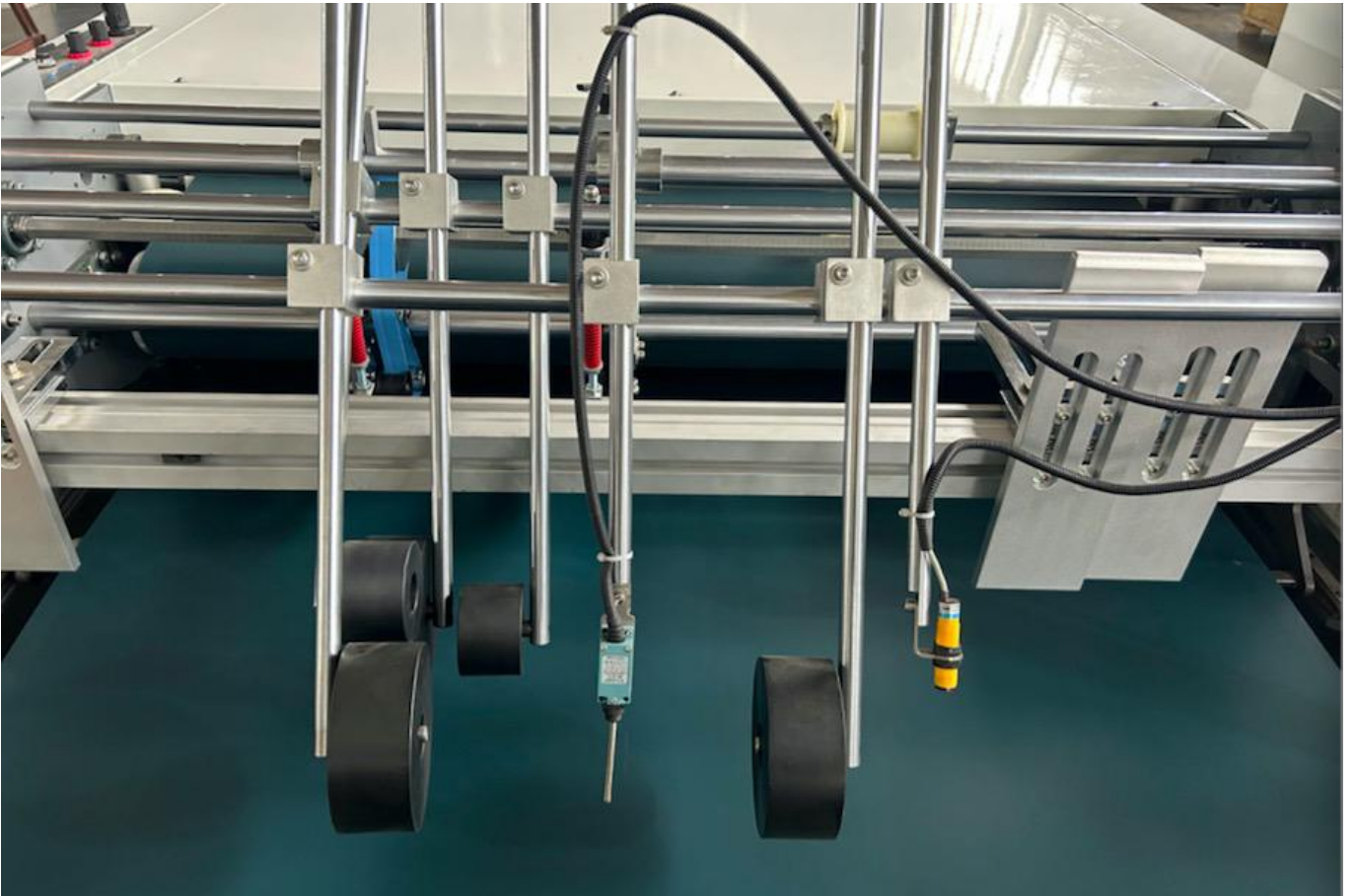
## 11-2 Adjust Press paper device

### Adjust Press paper device

1. It is best to adjust the angle according to the paper thickness and the height of the trombone section.
2. Box sizes are different, When adjusting, use a wrench to loosen the bolt, adjust the angle and width, as shown



1. The paper pressing assembly can adjust its up, down, left and right.
2. Loosen the screw of the platen assembly, then can adjust.



### 11-3 Position adjustment

Fore and aft position adjustment

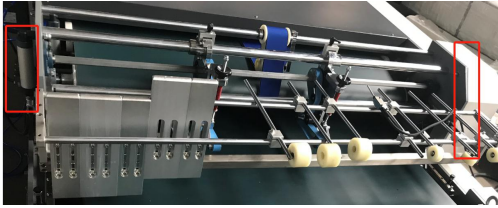
1. Adjust the front and back position of the upper belt presser according to the length of the paper.
2. The adjustment method can be moved forward and backward by starting the motor through the button in Figure





No.1: The total air pressure of the machine

No.2: At the frone of the conveying section, there are two cylinders,It is used to adjust the pressure of these two cylinders.



No.3: Air pressure adjustment of the conveying part

No.4: Before moving the upper layer of the conveying part, the air pressure of the conveying part must be released. And also need Loosen this screw.



No.6: Move forward

No.7: Move backward

### 11-5 operation

1. The total air pressure is controlled by the barometer, as shown 11-5-1

2. The action mode: manual and automatic:

automatic: It can be linked with the front gluing box. When a box comes over, it is sensed by the sensor, and then the press section runs automatically..

manual: When there is no paper in the front gluing part, The press section can be operated manually by the remote control or buttons of the paper feed section.

## Chapter 12 Maintenance

### 12-1 Safety precautions

1. Please confirm the position of the emergency stop switch before operation.
2. Be familiar with the meaning of all warning signs.
3. Understand the operation methods and functions of all switches and buttons.
4. Only after confirming that the machine is stopped, then you can reach into the machine for adjustment
5. Must know how to cut off the main power supply.
6. When the user replaces, please pass the current state of the machine to the next operator, and confirm that there is no abnormality in the machine.
7. Make sure that all emergency stop switches can operate normally.
8. Confirm that there are no tools, etc. in the machine.
9. The operator must be neatly dressed, do not lead the tie, the sleeves must be buttoned up, and there must be no overhangs on the body to prevent the machine from being caught.
10. Nothing should be placed on the operator's jacket pocket to prevent falling into the machine when bending down.
11. When you feel tired or uncomfortable, please stop operating this machine.
12. Confirm that no one else is in the machine.

## 12-2 Maintenance

Regular maintenance is necessary to make the machine efficient. Please ensure the maintenance of the following items:

### Maintenance Daily

1. Air Compressor drainage and oil filling.
2. Clean the paste bucket.
3. Paper ash removal of the photoelectric sensor.
4. Remove the paper ashes after running.

### Maintenance Weekly

1. Check the tightness of the transmission belt and chain.
2. Check damage of the power belt and chain.

### Maintenance Monthly

1. Put a little oil on the chain
2. Maintain the plastic gear with a thin layer of butter
3. Check the motor (current, temperature)



## Maintenance Yearly

1. Butter supply for bearings with even seats.

## 12-3 Oil

### Lubricate the bearings

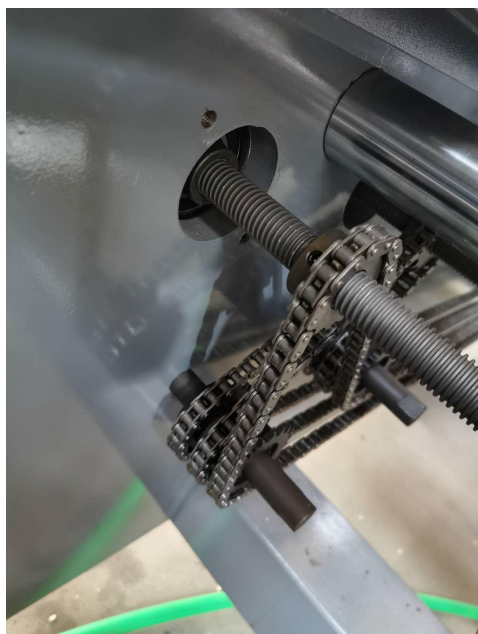
1. Add Oil to the bearing when you found abnormal sound on yearly maintenance time.

See below:

### Lubricate the CAM

1. Add oil to the CAM when you found abnormal sound on monthly maintenance time.

See below:

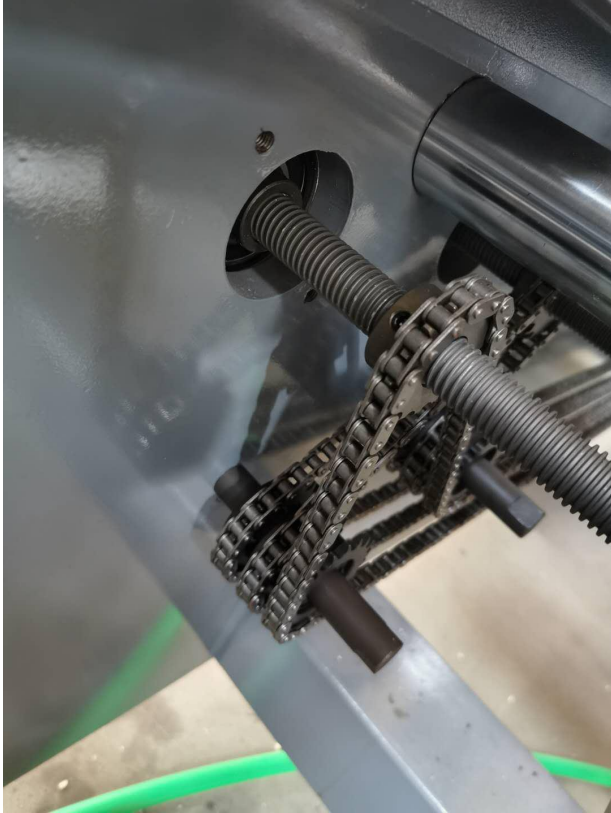


## 12-4 Check the belt

1. Must check the transmission belt to keep the correct tension weely, see image 12-4
2. If the tension is not correct, please adjust the position of the auxiliary rollor so that the belt tension is maintaind properly.
3. Check whether there is damage or crack on the surface, if the belt is damaged or cracked, please replace the belt immediately to prevent it from breaking in use and causing damage to the machine and products.

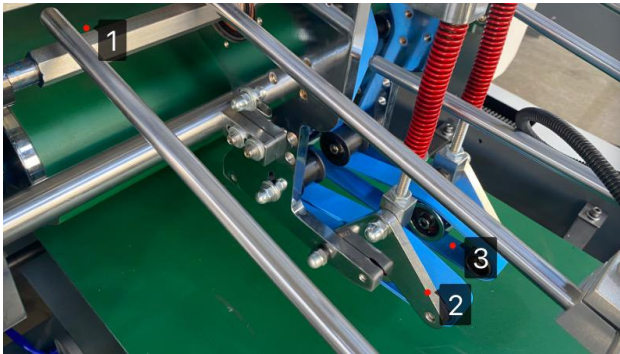
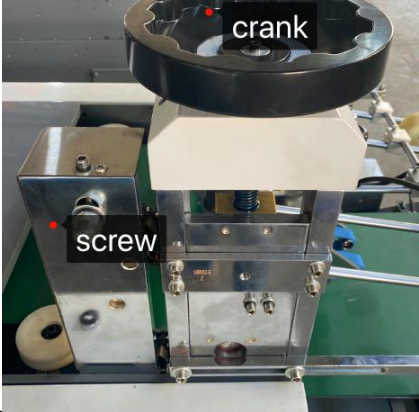
## 12-5 Check the chain

1. Must check the chain to keep the correct tension weekly, see image 12-5-1
2. If the tension is not correct, please adjust it to keep the right tension.
3. Must oil the chain if you found abnormal sound on monthly maintenance time.



### 13-1 Mechanical Problems and Solutions

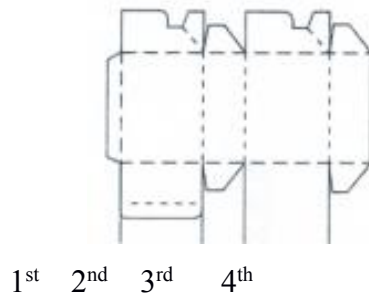
Problem	Reason	Solution
The main motor do not start to work	<ol style="list-style-type: none"> <li>1. The main power switch is not on</li> <li>2. The emergency stop switch is pressed</li> <li>3. Do not press the start-up button first</li> </ol>	<ol style="list-style-type: none"> <li>1. Turn on the main power switch in the electrical box</li> <li>2. Reset the pressed emergency stop switch.</li> <li>3. Press the start-up preparation before pressing the inching or running button, and press the inching or running button only after hearing the warning sound</li> </ol>
The current on the main control box indicates that the current is too high	<ol style="list-style-type: none"> <li>1. Friction contact of pressure pulley belt</li> <li>2. Foreign bodies are sandwiched into the pressure band</li> <li>3. The pressure of upper pressure plate is too large</li> </ol>	<ol style="list-style-type: none"> <li>1. Check where the pressure band friction is and adjust it.</li> <li>2. Check where foreign bodies are trapped and eliminate them.</li> <li>3. Adjust the pressure of the upper pressure strip to a proper level.</li> </ol>
The vibration motor of the paper feeding section does not work	<ol style="list-style-type: none"> <li>1. The vibration switch is not turned on</li> <li>2. The machine is not in paper feeding state</li> </ol>	<ol style="list-style-type: none"> <li>1. Turn on the vibration switch.</li> <li>2. Press the paper feed switch, the machine starts to run and the vibration motor starts to work.</li> </ol>
The servo motor cannot be started	<ol style="list-style-type: none"> <li>1. The servo motor switch is not on</li> <li>2. Photoelectric switch position error</li> </ol>	<ol style="list-style-type: none"> <li>1. Turn on switch of servo motor.</li> <li>2. Adjust the photoelectric position so that it can sense the paper correctly.</li> </ol>
The conveyor does not work	<ol style="list-style-type: none"> <li>1. Not press the conveying part manually or automatically</li> <li>2. Press the automatic button of the conveying part, but do not press the paper feeding button</li> </ol>	<ol style="list-style-type: none"> <li>1. Press the manual or automatic switch.</li> <li>2. Press the paper feeding button, the machine starts to work, and the conveying section automatically runs.</li> </ol>

<p>Counting cylinder does not work</p>	<p>1. The photoelectric position is not accurate 2. Counter setting error</p>	<p>1. Adjust the position of photoelectric sensor so that it can sense the paper. 2. When the number of counter sheets is greater than the set number, please reset the counter to zero.</p>
<p>Unable to feed paper</p>	<p>Paper feeding motor does not work</p>	<p>1. Press the inching or running button to start the paper feeding motor to feed paper.</p>
	<p>When you want to adjust this height, be sure to loosen the screw. Otherwise, due to operating errors, this shaft may be broken. The purpose of this shaft is to drive these two small belts.</p>	
		
<p> </p>		

Attention: The catalog is for general reference only, special design is available.

### 1) Normal folding type of box

On the basis of die-cutting indentation, the normal box-shaped has four indentation lines. In the process of making paper boxes, there is generally no need to pre-fold. But for easy to open box, we pre-fold 1st and 3rd line. 2nd and 4th line is folding line. Figure 4 for reference :



### 2) Testing corrugated board

In order to glue a high-quality carton, it is necessary to do the inspection of the cardboard after die-cutting to make sure whether can be made by folder gluer, to avoid unnecessary waste after run in machine.

Fold the cardboard in the direction of die tangents into 180 degrees. Compacting with your hand along a line (Fig. 4-5) not less than three times. Inspecting whether it has crack on the outer corners. If there is a crack, such cardboard is not suitable for running on the machine, we should change cardboard or change width and depth of die tangent, repeat the previous testing again, put machine to debugged until there is no crack at the corner.

Check if the width of the die tangent is consistent, the join line is parallel, and the horizontal line is vertical. The parallelism and verticality of die tangents have a great influence on the appearance quality of paper cartons. The error of the smaller carton can not be more than 0.5 mm, otherwise the paper box will be skewed.

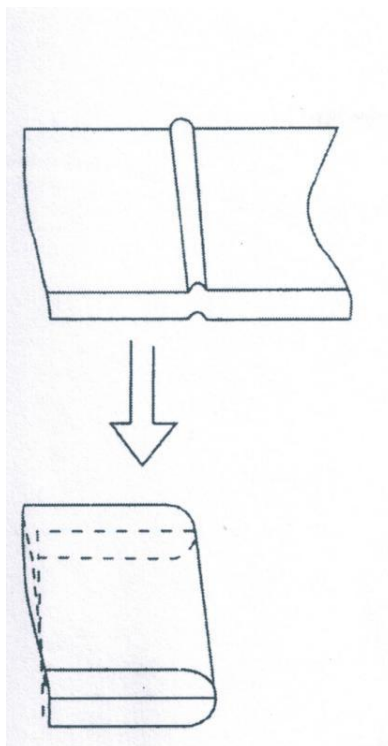
Take a sample cardboard to glue box by hand before putting paper on machine. See if its appearance is correct, and whether the edges and corners are clear. When the manual glue box fully meets the requirements, the machine glue paper products can achieve better results.



In order to make adjacent edges easy to plug, the corner can be straight. There should be a large slope on the side of glue. In order to easy to plug in, it is best to make a circular arc at the end of the head. The line of glue mouth should be lower than one cardboard thickness of the adjacent die tangent line (like figure 4-6), this is important for bottom lock box.

In order to make the finished box size consistent, besides measuring the size of single cardboard, also should spot check die cutting paper board size, the adjacent interval should not be less than 50 pcs.

When the quality of die-cutting is not ideal and the request for box type is high, it is best to classify the die-cut cardboard. Put the same type of die-cut cardboard together on the machine; When replacing another type of die-cut cardboard, micro-adjust the machine for this batch of cardboard. In this way, you can glue a better carton, the size of the carton may not be the same.



**Figure 4-5**  
**Compression test of cardboard**

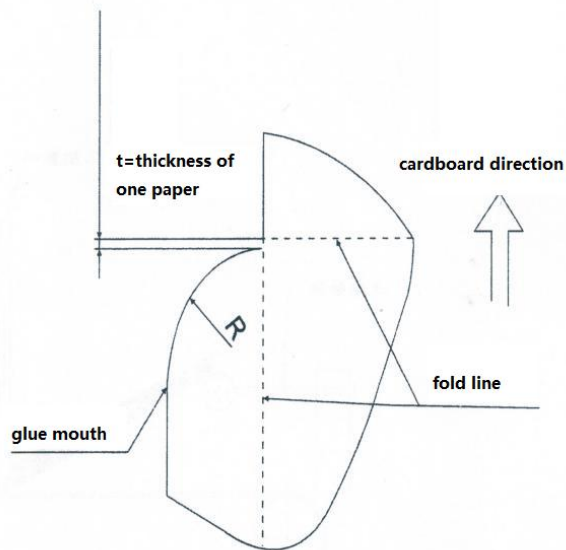


figure 4-6 structure of glue mouth

**Figure 4-6**  
**Structure of glue mouth**

### 3) Placement corrugated board on machines

Placement of cardboard in the feeding section(figure 4-7)

In order to make secure reliable support for cardboard,reduce two piece,feed knife must be coincident with the paper conveyor belt.If no alignment,release the screws on the support seat on the paper guide,turn the gear shaft with a handle,it can align the feed belt with the feed knife.Adjustment of both sides of guide plate(Figure 5-1)

Attention:Transmission shaft of folder gluer is mostly cantilever shaft structure.When pasting small boxes, cardboard should probably be placed on one end of the cantilever shaft of the machine,this can reduce the vibration of the drive shaft when the shaft rotates at high speed.This is good for the quality of the paste box and the life of the machine.

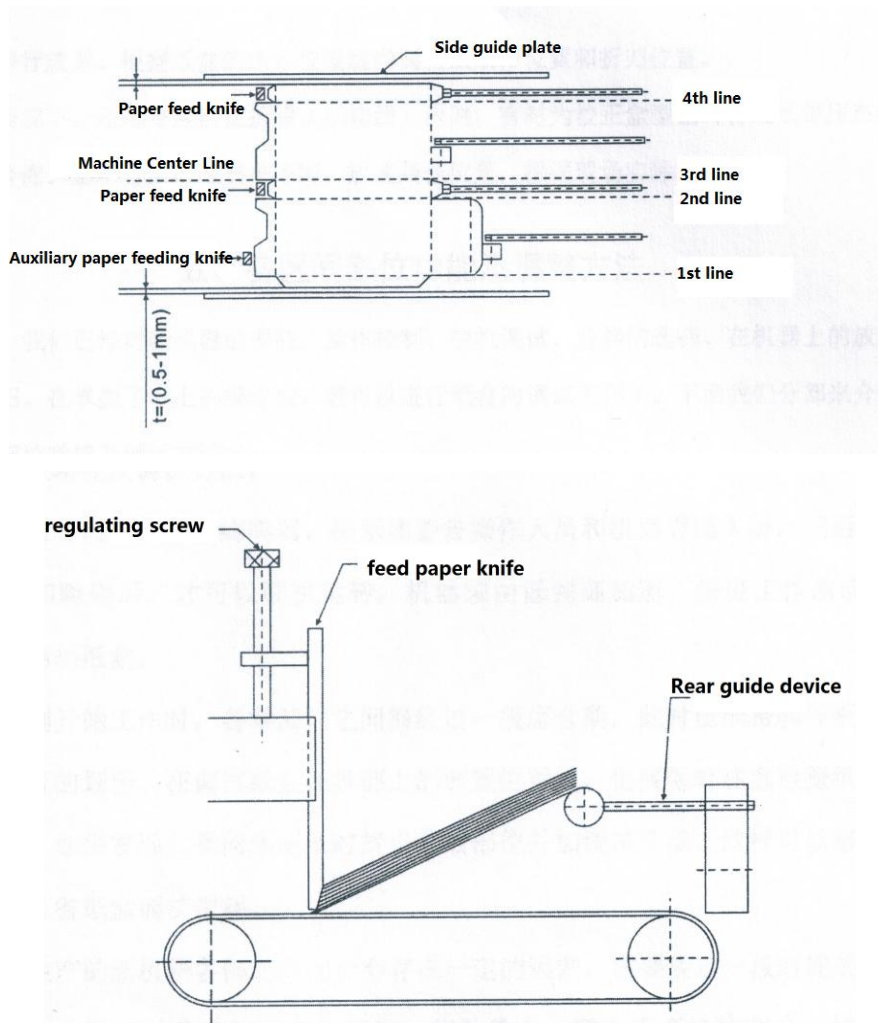


Figure 4-7 Feeding board placement

1. Placement of cardboard in other locations(like figure 4-8)

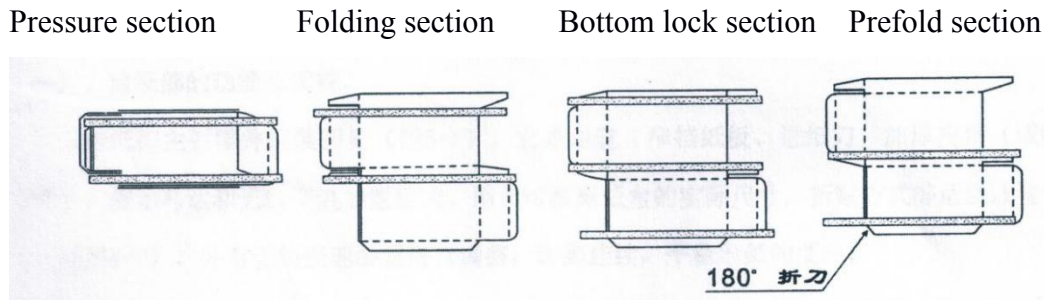


Figure 4-8

The general principle of cardboard placement on the machine is to ensure that the folding edge is accurate and the paper runs smoothly. In practical work, you can place according to different paper and box. Adjust the press tape position and folding knife position according to the operating position of the paper box.

Normally, Press the paper tape inside the fold line (die tangent). Sometimes the paper tape can be pressed on the fold line or on the outside of the fold line for the correction box type. Because of the different box type requirements, place the best position according to the actual debugging on the spot.

### 5. The function and adjusting method of the each section

In front, we have made a detailed introduction to the installation, operation control, empty-machine debugging and box-type selection. In the following, we introduce the function and the debugging method of each section of the machine.

Press the buzzer, prompt and warn the operator and the people around the machine before starting the machine, then inch run to test machine. After confirm no fault and barrier, then start run. Machine speed shall be accelerated from low to high. The machine should run empty for 10 to 15 minutes before each shift, then glue the carton.

When the new machine is starting to work, the parts need to pass through a period of grinding, at which time the paper tape and the guide plate may have a slight scratch on the outer surface of the carton. It is also necessary to check whether the outer surface of the paper box is scratched and embossed at any time when the position of the debugging paper box on each part is in place. If this kind of problem is found, the accident position should be found out in time and debugging, so that the efficiency can be doubled, the time of shunting and the consumption of paper carton debugging can be reduced.

The new machine just put into production will have a certain error in the coordination between the various parts, which needs to go through a period of running-in. In order to reduce the time of the grinding, in the beginning of production, it is necessary to paste some products which are large in batch size and require no strict products, so that the surface quality of the parts such as the pressure paper tape, the folding knife, the guide plate is improved. Then when glue products with high external surface requirements and high quality requirements, the outside surface of carton will reduce scratch and indentation. The quality of the paper box can also be greatly improved. At the same time, in order to reduce the indentation on the surface of the paper box, under the condition that the paper carton moves normally and the quality is guaranteed, it's better to lower the pressure

of top and lower press tap.(Attention:The pressure is too small for the paper tape to fall off easily.)

### **1) The function and adjusting of the feeder section**

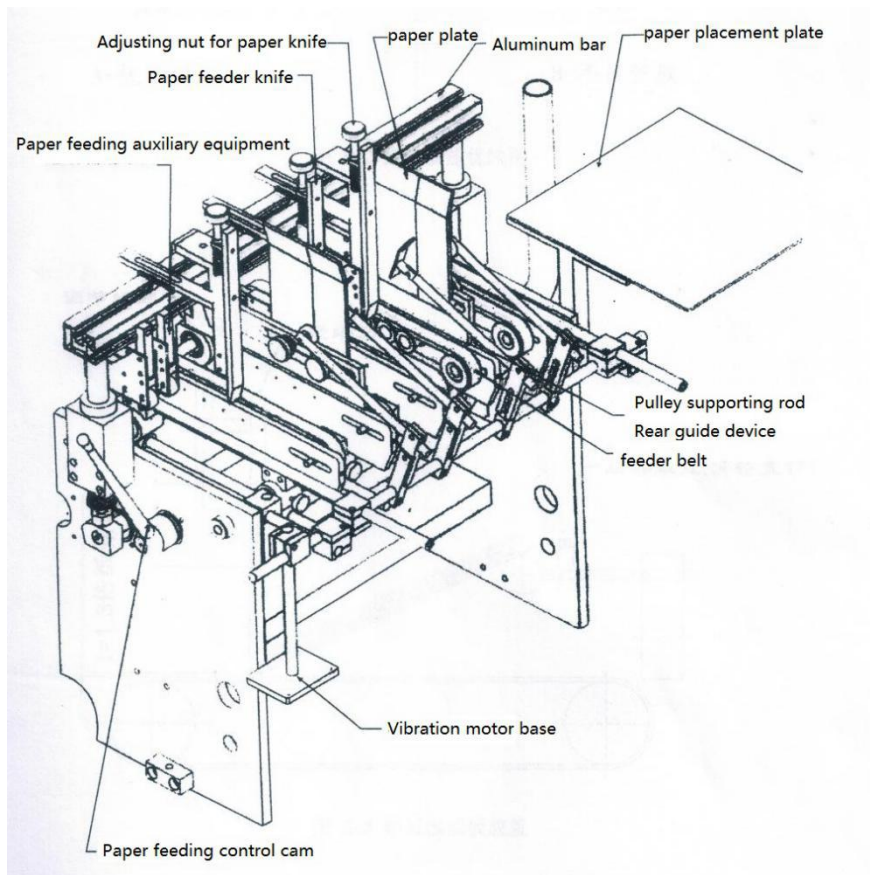
See the assembly diagram of the main parts of the paper feed section (figure 5-1),it consists of a wide, narrow knife, a paper feed knife, a thickened belt (or an air suction belt), a vibration motor and a continuously variable transmission.

The user can properly place the paper board (see Figure 4-7) according to the actual size of the paper box, the method of folding,and adjust the stepless speed change device to meet the requirements of continuous and smooth paper.

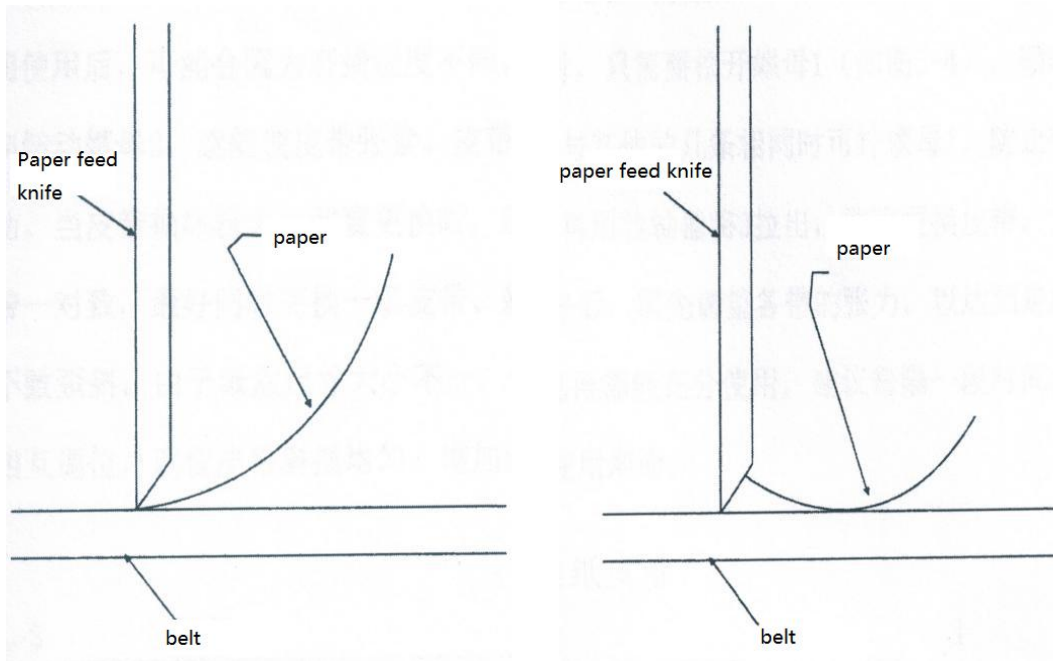
In order to make the cardboard walk smoothly and not deviate, when installing the paper feed knife and the board, the side that fits with the square guide should be fastened and firmly fixed, so as to ensure that the cardboard moves parallel to the direction of transportation. Otherwise, the paper is not correct or skewed.

The contact surface of the paper feeding knife and the paper board shall be in the flat position, and the position of the paper supporting rod shall be the part which is not easy to deform.

Cardboard placement depend on figure 4-7,also according to figure 5-3,make careful adjustments.The distance between the feed knife and the belt is 1.3 times the thickness of the paper.The principle of adjustment is to ensure that the single board passes smoothly, and the two sheets can not pass.Keep a certain angle between cardboard and belt by paper-supporting rod.The small, light cardboard is 15 degrees 40 degrees.The big, heavy cardboard is 10-20 degrees.However, the situation as shown in figure 5-2 should be avoided.It is sometimes necessary to use a wet cloth to wipe the belt in order to increase the belt friction, so that the paper will be better.The new model of our company has a suction belt on the paper guide plate, which has been greatly improved compared with the paper feed.



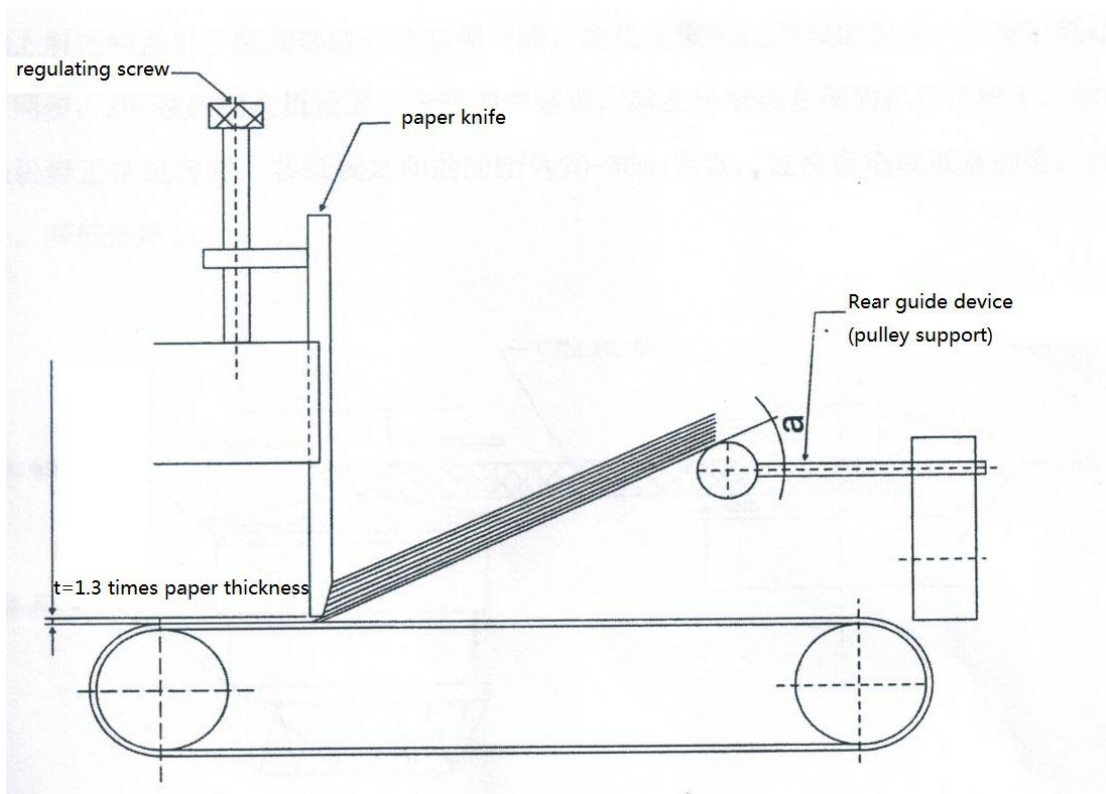
**Figure 5-1 Paper feed assembly drawing**



**A-Excellent placement**

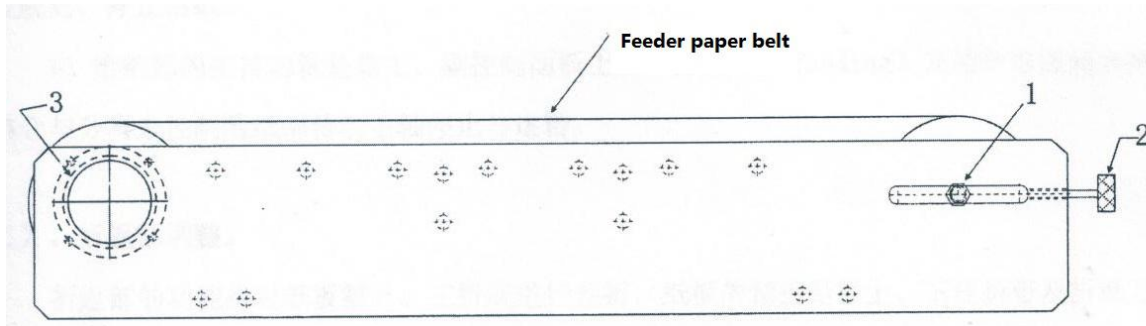
**B-Bad placement**

**Figure 5-2 Layout of Paper Placement**



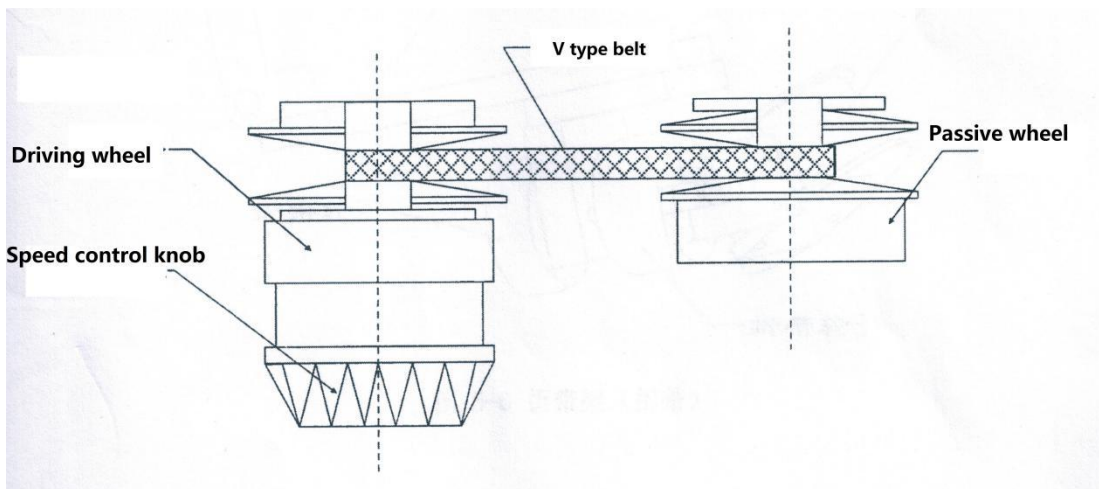
**Figure 5-3 Paper Board Placement**

Paper feeder section is provided with a flexible belt, the tension of belt is adjusted before coming out of the factory, so you don't need to adjust. Paper feeder section is provided with a flexible belt, the tension of belt is adjusted before coming out of the factory, so you don't need to adjust. After a period of use, it may be necessary to adjust due to different degrees of wear. Just loosen nut 1 (like figure 5-4), turn nut 2 clockwise, so that the belt can be tightened. When the belt is as tight as the others, it can be screwed to prevent pulley shake. When the belt is damaged and needs to be replaced, loosen nut 1 and pull out 3 with a puller to replace the belt. For belt alignment, it is best to replace a set of belts at the same time. After the new belt is replaced, the tension of each belt should be adjusted first, so that the paper feeding will not be skewed. Because the size of carton is different, 5 groups of belts may not be able to be fully used. It is recommended that belts be adjusted position to each other every once in a while, to avoid belt wear unevenly, increase the service life of the same group of belts.



**Figure 5-4 paper belt adjustment chart**

As described above, all parts of the folder gluer must be consistent in motion. Feed speed to meet scheduled requirements. In order to synchronize the paper feeding speed with the back process, ZH series folder gluer are equipped with stepless speed regulating device, which is installed on the left side of the paper feeding section. As shown in figure 5-5, when the machine is running normally, the spacing between the cardboard is 20-30mm. Too soon will cause carton congestion, too slow causes waste and lowers efficiency.



**Figure 5-5 stepless speed regulating device**

Rotating the stepless variable speed device handle must be carried out when the machine is started, and to rotate slowly and uniformly. Otherwise, it is easy to cause the belt to relax and fold together to damage the belt. When turning the handle clockwise, the blade of the active wheel opens, the belt sinks, and the radius of the pulley decreases. When turning the handle counterclockwise, the active wheel plate shrinks, the belt rises, and the pulley radius increases. With the change of the radius of the pulley, the purpose of the

stepless speed change is achieved. The transmission ratio selected for the ZH- series folder gluer is 1:4. A suitable speed may be selected within a specified range, synchronizing the paper feed speed with the returnable belt.

When paper feeding is required, turn the cam lift handle clockwise (figure 5-1) to bring the feed board down into contact with the belt, rely on belt friction to keep the cardboard feed. When the feed needs to be stopped, turn the cam lift handle counterclockwise, when the belt is detached from the cardboard and stop feeding.

The main drive shaft of the paper feeding section relies on the "paper feeding" on the main and auxiliary control panels to control the combination and separation of electromagnetic clutch to control the stop and operation of the main shaft of feed paper transmission.

## 2) Adjustment of prefolding section

The function of prefolding section is to pre-fold the first and third fold lines of the paper board. The pre-folding of cardboard is done on top, down folding belt and folding knife. Folding support (turning belt) (figure 5-6) is equipped folding pulley and folding belt. There is one piece on each side, which is installed on the two guide plates on the right and left of the prefolding section. The folding belt (the turning belt) has been carefully commissioned before the factory, and the pre-folding of the paper board can be finished as long as the different folding knives are selected.

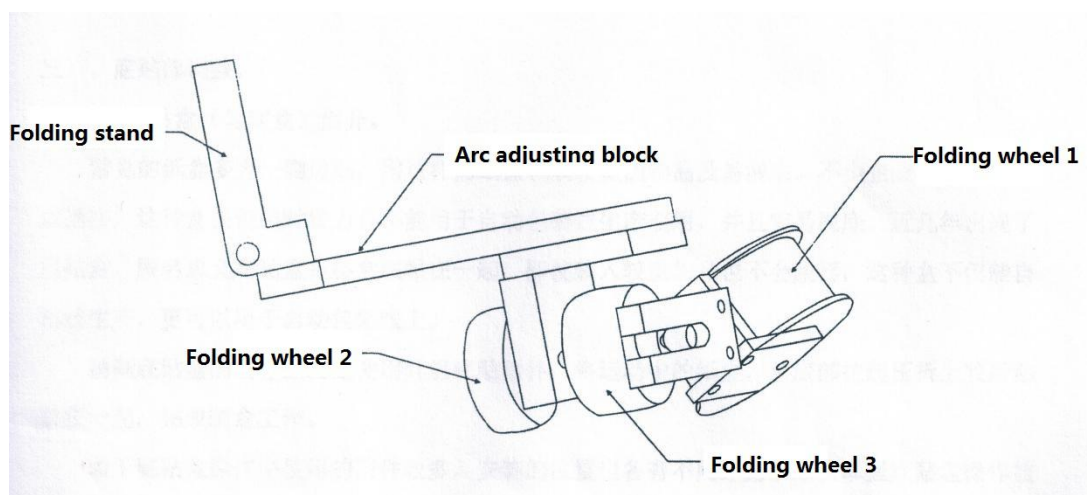
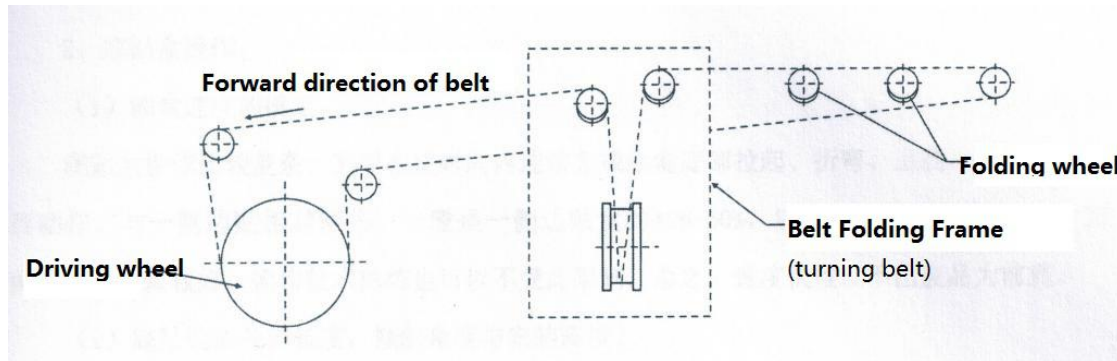


Figure 5-6 Folding frame (turning belt)



The paper folding belt is installed on the folding belt wheel and the guide plate tension wheel, and the folding belt moves as shown in Figure 5-7.



**Figure 5-7 folding belt winding diagram**

Due to the changing trend of the folding belt, the angle of the three folding pulleys installed on the folding belt is slightly different, and the belt is likely to fall off when the belt is driven. In order for the belt to not fall off, it is essential to adjust the angle of the three folding wheels on the folding frame. First, fix wheel 1 (the largest side wheel) horizontally, at this time, wheel shaft strut should be 40-60 degrees cross angle with wheel rack. Then adjust pulley 3, requirements for fold belt capable of converting cardboard to 90 degrees 135 degrees: To adjust Wheel 2, so that the angle can be reached when the machine is running, the belt will not fall off. In order to have a certain distance between the pulleys, the extension length of the wheel rod can be adjusted as appropriate. When both the wheels 2 and 3 are adjusted, the angle of the wheel 1 can be changed, to bring the folding belt to the best working state.

With the size and shape of the paper box, the angle of the three pulleys is slightly different. The operator of the first contact folder gluer can be debugged according to the position angle of the original pulley of the machine, step by step with continuous practice.

### **3) Adjustment of crash bottom lock section**

#### **1. Introduction of crash bottom lock box**

Most of the common cartons are side-pasted, use such cartons to pack heavier items and leak easily. Many enterprises design the bottom of the box as a plug-in, it is difficult to pack and cannot be used for automatic packing production line, also easy leak. In recent years, here are crash bottom lock box, it means glue the bottom. Even when loaded with heavier items, they don't fall off. This kind of box can not only produce automatically, but also can be used on automatic packing line.

The operation principle of the gluing bottom lock box is to use several sets of bottom-attached accessories. Press the moving carton from the bottom and fold it together and glue it together to complete the carton-making work.

Because the spare parts used in the operation of the bottom lock box are more and the position of the installation is different, in order to master the operation skill of the bottom lock box as soon as possible, the operator shall be familiar with the name, the installation position and the use method of the various spare parts.

On the basis of master of a kind of bottom lock box operation, so as to be able to change with the box type later, and in the shortest time, the various spare parts can be correctly installed in place, and the box gluing is finished in high quality.

In addition to the technical training study, the operation can deal with various problems in a better, faster and more accurate way according to the accumulated experience in actual operation.

#### **2. Operation of crash bottom lock**

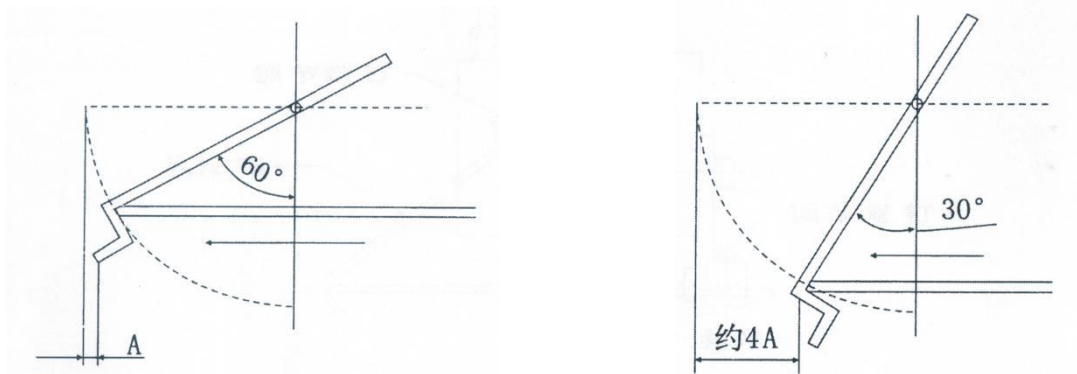
##### **(1) Confirmation of gluing speed**

The bottom box operation is more complex, need in a short period of time to complete the bottom of the box pull up, bend, glue, press and so on a series of actions. Speed is slower than one side box. The average speed is only 40% to 60% of the one side box speed. So as to avoid tearing the carton because speed is too fast. However, the quality of the carton is good, skilled operation can also be free from this restriction. Anyway, the

speed is based on the premise of no waste.

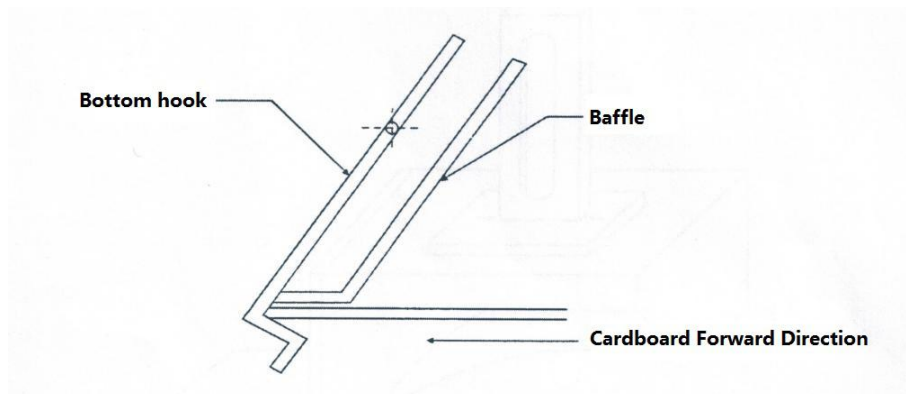
(2) Extension length, inclination angle and installation height of bottom hook.

The extension length of the bottom hook is generally  $1.2 \times 1.5$  times the bottom length of the paper box, and the inclination angle is 30 - 60 degrees. The bottom hook should be 0.5-1 mm lower than the belt. The general principle is to ensure that the cardboard is pulled by the bottom hook as it passes. The cardboard can be safely decoupled after a certain amount of time and distance. The angle of the bottom hook is shown in figure 5- 8



**Figure 5-8 bottom hook angle diagram**

Sometimes, in order to prevent the cardboard from bending too much when the bottom of the board is pulled up, install the baffle under the bottom hook to prevent the above-mentioned situation, and to make the bottom of the hook box sharp-angled and of quality up to standard. Figure 5-9.

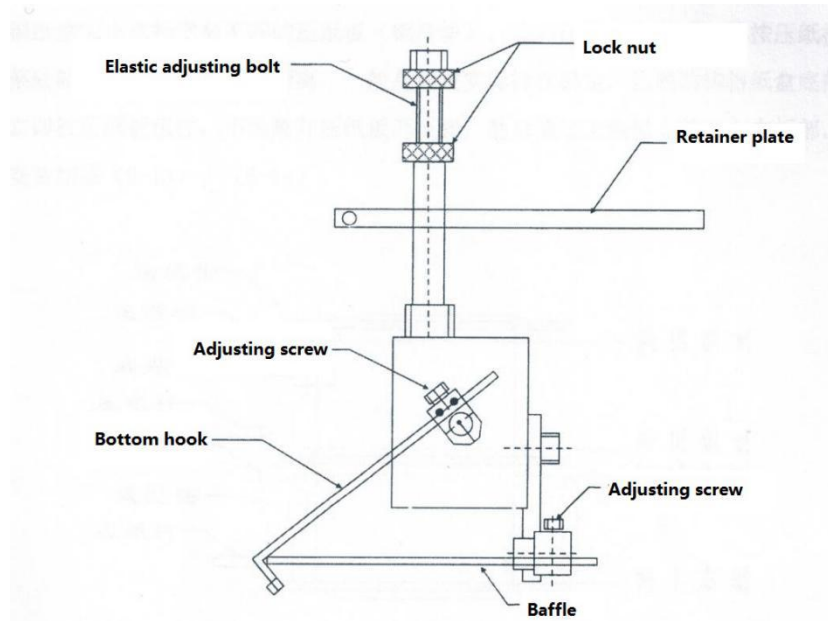


**Figure 5- 9 baffle installation diagram**

(3) Introduction of bottom lock kit and spare parts

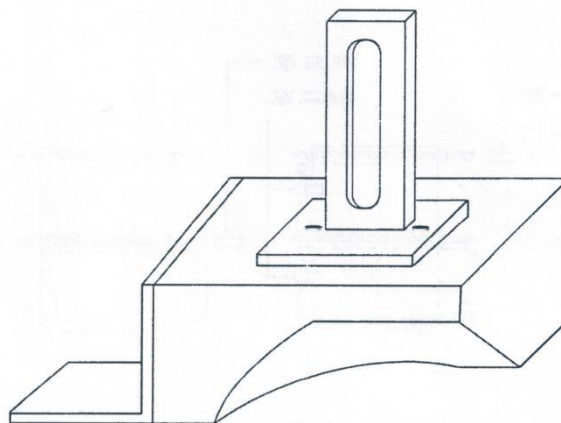
The main function of the bottom hook kit is to pull up and bend the bottom of the cardboard. Like figure 5-10, install the kit in place with the help of the retainer

board. Release the corresponding screws to adjust the height and angle of the bottom hook and the position of the baffle separately. Turn the handle to adjust the elastic force of the bottom hook, after adjusting the elastic force, lock the master lock.



**Figure 5-10 hook bottom kit**

When the bottom hook is used for hooking the bottom of the paper board, press paper board (aluminum slide block) (as shown in figure 5-11), pressing the part of the glue on the bottom of the paper board to be bent forward, and after the paper board passes through the press board, and smoothly enters the upper paste press paper sheet to glue.



**Figure 5-11 press paper board (aluminum slide block)**

(4) the location of the mounting of the bottom spare parts

ZH series machine for bottom lock, is equipped 4 sets of bottom hook, 4 sets of left

and right press paper board. Besides correctly placing the press paper board and mounting the bottom hook as shown in figure 5-12 and figure 5-13, special embossing bars need to be installed. These spare parts are essential in making the bottom lock box.

Select press paper board with different width according to box size (aluminum slide block). Install the press paper board first, then adjust the distance of bottom hook and press paper board according to position of press paper board. It is generally determined by actual operation. When the bottom hook is used for pulling the bottom of the paper box to be bent, it is pressed by the pressing board immediately, and does not rebound by leaving the pressing board, and then enter folding section through upper glue bowl.

Four sets of bottom hook and bottom are installed as shown in the figure(5-13),(5-14)

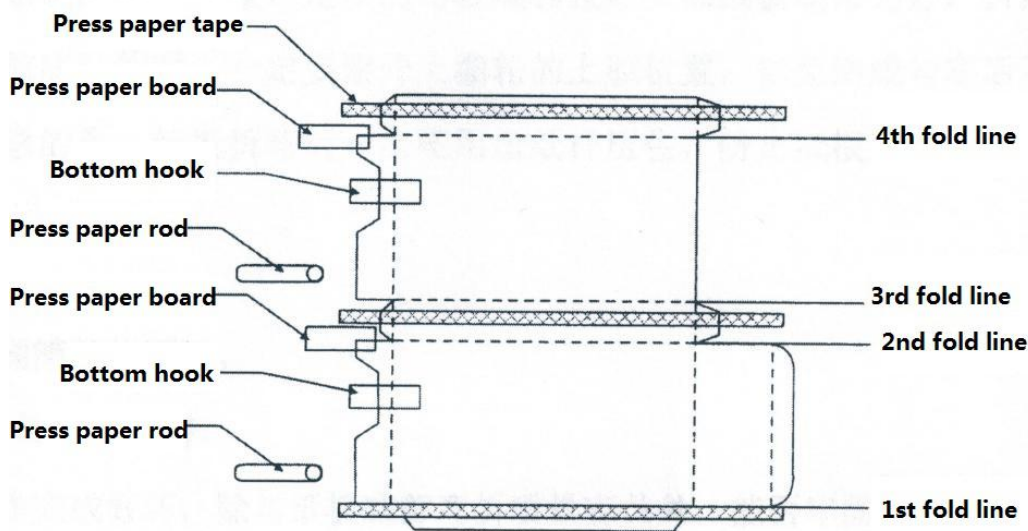


Figure 5-12 Installation drawing of bottom hook and spare parts

Press section

Fold section

Bottom lock section

Prefold section

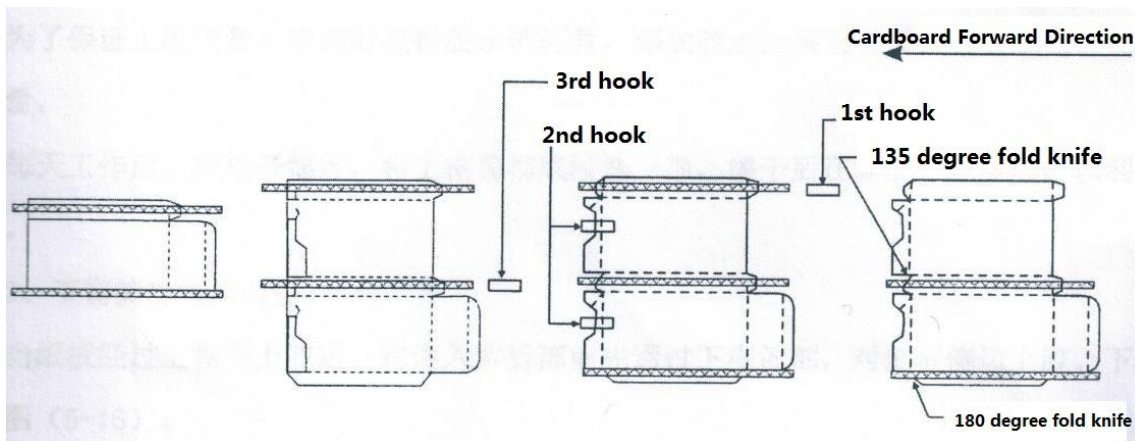


Figure 5-13 Installation of bottom lock spare parts of 3 group guide board

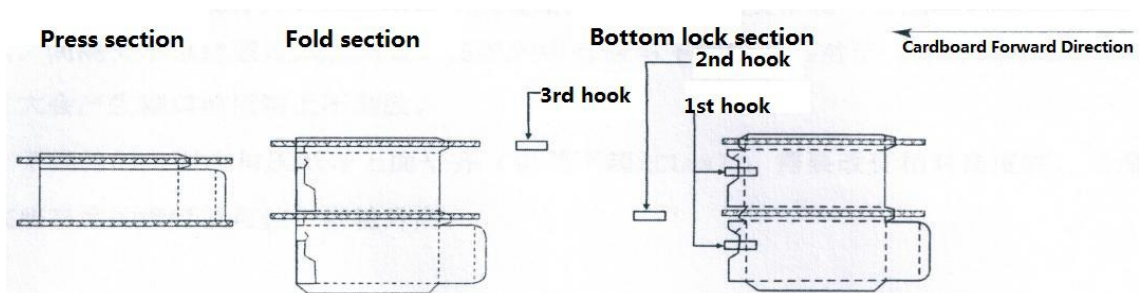


Figure 5-14 Installation of bottom lock spare parts of 2 group guide board

The best position of the bottom hook is to be able to pull up the bottom of all the paperboard and the paper can not be deflected. When place cardboard and install bottom hook, must avoid the position of the upper glue wheel. It is also important to note that cardboard must be pressed with a press bar after bending in order to prevent cardboard bouncing, so as not to cause the machine to fail to open.

#### 4) Adjustment of upper and lower glue bowl

##### (1) Rise and fall adjustment of upper glue bowl

Besides the bending quality of the bottom of paperboard, whether stick well also is an important standard for bottom lock operation. When all bottom hook spare parts are in place, adjust the upper glue wheel to lower the upper glue bowl until the upper glue bowl into contact with the cardboard paste. According to thickness and tension of cardboard, the upper paste wheel should be slightly lower or higher than the cardboard paste (deviation  $\pm 0.25$ ). This can ensure that the glue is reliable and the paper runs smoothly.

The upper glue bowl is composed of a upper glue bracket, a hanging plate, an

adjustable handwheel, a glue bowl base, a glue wheel, and other parts, as shown in figure 5-15.

In order to ensure glue quality, glue should be added at any time according to glue consumption. Adjust the glue amount of the paste wheel by adjusting the screw with positive and reverse rotation.

After working every day, loosen the screw, thoroughly clean the top glue bowl, dry and spread a layer of butter, easy for the next cleaning.

## (2) Function and adjustment of lower glue bowl

When the cardboard passes through the paste chair, before entering the fold, first through the lower glue bowl, glue the side of the cardboard. Lower glue bowl structure as shown in figure 5-16.

Turning the down-setting can change the glue amount of lower glue wheel. Usually stick firmly, but glue is overflowing. Attention should be paid to the 1.2mm leakage from the paste to the left and right after press. After many experiments to determine the appropriate amount of glue, avoid glue too less to stick well. Or avoid glue too much to open. According to the thickness of the cardboard, use the up-regulation mechanism, change the distance between the roller (press wheel) and the lower glue wheel, the spacing size is appropriate to pass through the cardboard. The center of the press wheel should be aligned with the center of the lower glue wheel (allowable deviation  $\pm 0.5$ ), excessive deviation will cause less glue on the front and rear ends of the glue mouth.

The top of the lower glue wheel should be aligned with the top of the press paper tape (Error does not exceed 1m). If you need to change the relative height, the lower glue wheel can be raised by changing the base height of the screw.

## 5) Adjustment and function of folding section

The folding section is composed of parts such as upper, lower press belt, folding belt, folding wheel, paper folding knife, press rod, and so on. It mainly completes folding 2<sup>nd</sup> and 4<sup>th</sup> line, final folding and gluing for paper box. The principle of folding belt is similar as prefold section. The trend of folding belt as shown in figure(5-17).

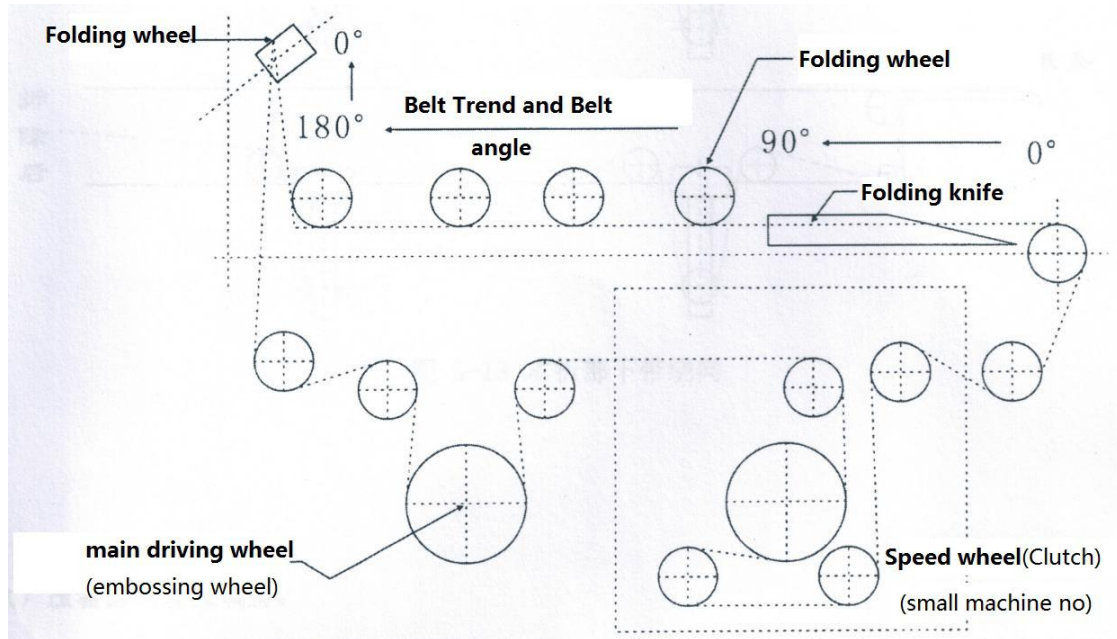


Figure 5-17 Winding diagram of ribbon belt at folding section

### 1. Adjustment of this folding belt at folding section

(1) When the paper box forms a trumpet (folded unevenly), taper guide and bar must be adjusted at folding section, make left and right belt folding angle to make appropriate fit.

(2) When the left and right belts have serpentine phenomenon, it shows that the angle of guide wheel on the back part of the fold is not right and must be adjusted properly.

(3) When the box is long, it is easy to produce trumpet. So the folding paper belt must be maintained at 90 degrees. When the paper folding line is finalized and folded again, the left folding belt can use first anti-tie of inclined bottom guide wheel, and right



folding wheel is normal.

(4) When the width difference between the first paper wall and the fourth paper wall of the carton is very large, it is easy to produce the phenomenon of trumpet mouth or pasting paper tongue on the carton. Therefore, it is necessary to use a hook wheel to hook the folding belt to 90 degrees, so that the left belt (the first wall) is folded to a certain extent, and the right folding band is being folded.

## 2. Method for removing front section of left board of folding section and belt adjustment

When the paste tongue is too narrow, the front section of the left middle plate of this fold shall be removed so that the center of the glue wheel of the lower glue bowl can reach the proper glue position. At the same time, due to the removal of the front board, the belt is too long, so the belt must change the winding method. After operate it, change the upper knife from 12mm to 9mm. Here form an empty section due to the removal of the front section, the supporting board must be locked to prevent the paper from sinking. As shown in figure (5-18)

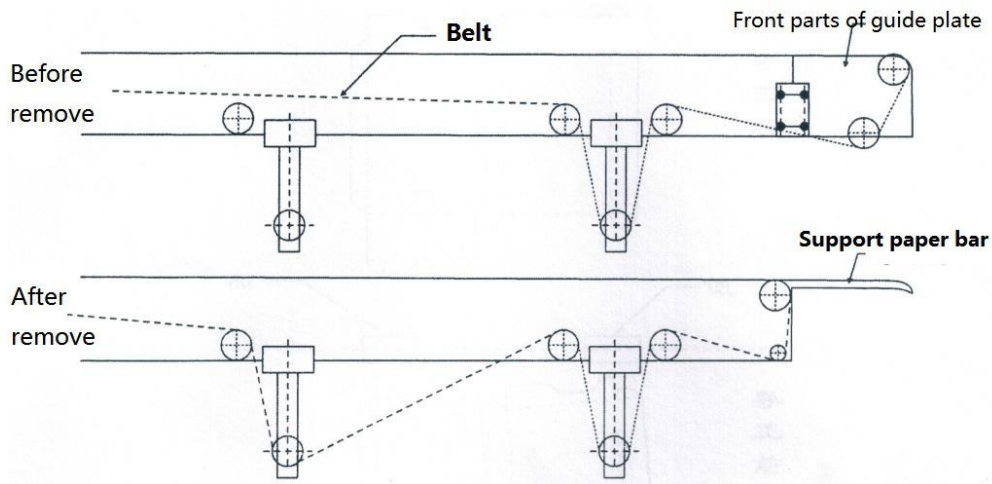


Figure 5-18 Wind diagram of low belt of folding section

## 6) The function and adjusting of the pressure section

1. The pressing section is the middle station between the main machine and the conveyor, through which the paper box can be pressed and counted, and the distance between the press bar and the paper press belt can be adjusted, so that the paper box can be smoothly transferred into the conveying section.

## 2. The positive action of the pressure section on the paper box

The upper and the lower two cross shafts are arranged between the folding section and the pressing section, and it is used for guiding the paper box.

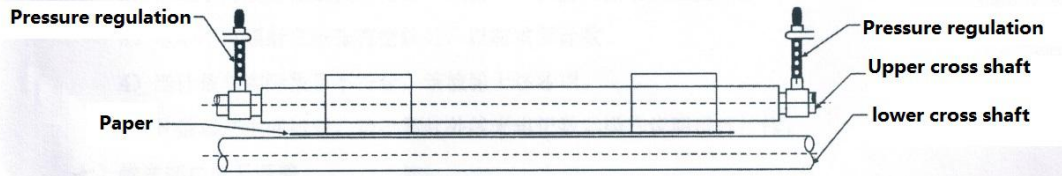


Figure 5-19 paper box guiding device(cross)

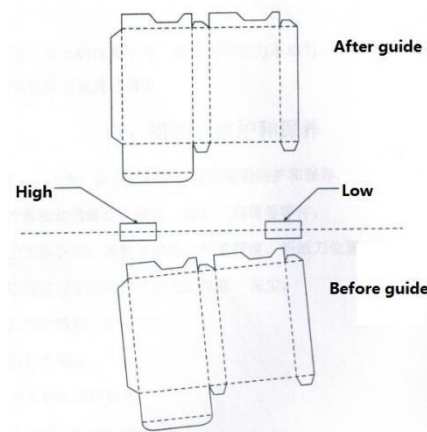


Figure 5-20 Paper box guide photo

## 3. The function of electric eye counting on press section

a. The counting of paper is calculated by the electric eye and cylinder injector. When the paper is counted through the electric eye and the amount is reached, the system marks the paper by the cylinder pressure gauge and then passes through the conveying section. The paper can be accurately divided into batches, according to the amount of packing.

b. The operating time of the cylinder is controlled by the counter, which sends out a strike command to the cylinder after receiving feedback from the electrical eye.

Attention:

(1) The electric eye should not irradiate the edge of the paper, to prevent paper from skewing and can't irradiate.

(2) Do not irradiate in the soft part of the paper (tongue) by electrical eye to prevent repeated counting due to vibration.

(3) Do not irradiate on the empty area of paper by electrical eye to prevent repeated counting.

- (4) When the count does not match the actual number, please check the above items.
- (5) When the counter produces a problem, please refer to the infrared photoelectric counter operation instructions for maintenance.

## **7) Function and Adjustment of Conveyor Section**

The conveyor section is composed of the top and the lower plain belt. The paper box sent by the pressing section is pressurized, and the paper box is firmly pasted together after a long stay in the conveying section.

The pressure of the upper and lower rollers in the conveying section is regulated by the pressure of the cylinder. When preparing to pass through the thicker carton, the cylinder pressure can be properly reduced, on the other hand, when the carton is thinner, the pressure can be increased, and the speed of the conveyor belt can be changed, so that the carton gets a constant pressure.

Sometimes, due to the different position of the carton on the belt, the force on both ends of the belt is not uniform, resulting in the belt running. At this time, the belt tension device on both sides of the conveyor can be adjusted.

## **6. Maintenance of machine**

In order to ensure the smooth operation of the machine, the machine must be maintained and maintained on a regular basis.

1. Always tighten loose screws, bolts, screws, nuts, etc.
2. According to the different working requirements, adjust the tightening degree of the press belt and the position of the folding knife.
3. Clean up the scraps of paper and dust from the machine in time after the machine has run.
  - a. Cleaning of upper and lower glue bowl, oil protection
  - b. Dust removal from electric eyes.
  - c. Lubrication of copper guide plates and clutches.

- d. Drainage and oil injection of air compressor .
- e. Lubrication and maintenance of nylon steel gears.
- f. Butter supply maintenance of main Drive Shaft bearing

4. Regularly add a small amount of lube oil to chains, screws, nuts, or wipe with cotton yarn dipped in lubricating oil.

5. Always pay attention to the sound of the machine running and observe the wear and tear of the parts.

6. The paper folding belt used in the folder gluer is a circular belt connected with a baseband. To extend the service life of the belt, install the belt as required, as shown in figure (6 -1).

- a. Inspect the tension, tightness of driving belt.
- b. Wear inspection of conveyor belt.

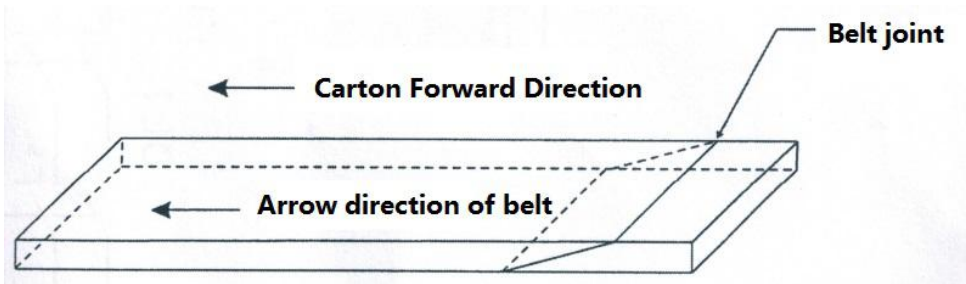


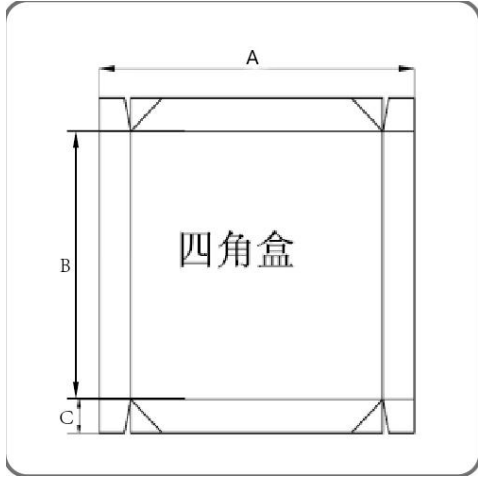
Figure 6-1 Direction of belt joint

## Four corner box

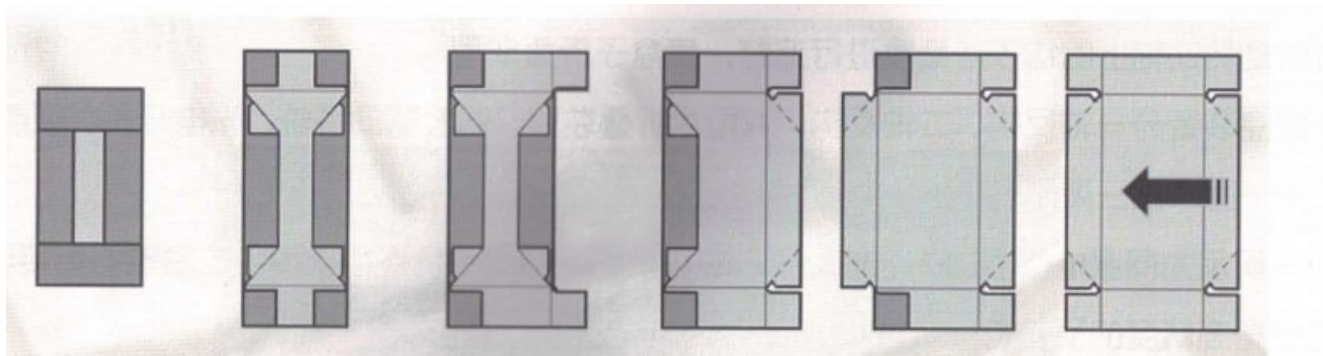
### 14-1 Safety precautions

1. Please confirm the position of the emergency stop switch before operation.
2. Be familiar with the meaning of all warning signs.
3. Understand the operation methods and functions of all switches and buttons.
4. Only after confirming that the machine is stopped, then you can reach into the machine for adjustment
5. Must know how to cut off the main power supply.
6. When the user replaces, please pass the current state of the machine to the next operator, and confirm that there is no abnormality in the machine.
7. Make sure that all emergency stop switches can operate normally.
8. Confirm that there are no tools, etc. in the machine.
9. The operator must be neatly dressed, do not lead the tie, the sleeves must be buttoned up, and there must be no overhangs on the body to prevent the machine from being caught.
10. Nothing should be placed on the operator's jacket pocket to prevent falling into the machine when bending down.
11. When you feel tired or uncomfortable, please stop operating this machine.
12. Confirm that no one else is in the machine.

14-2 size

4-corner box		
Model	2800Type	
A	650-2650	
B	300-1000	
C	30-250	

14-3 lustration of the position of the box-gluing box

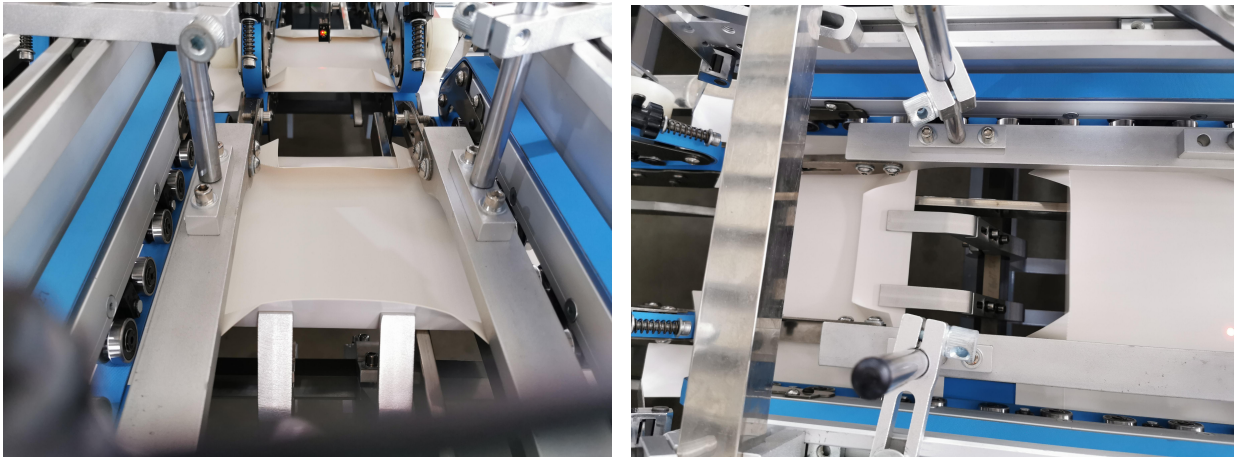


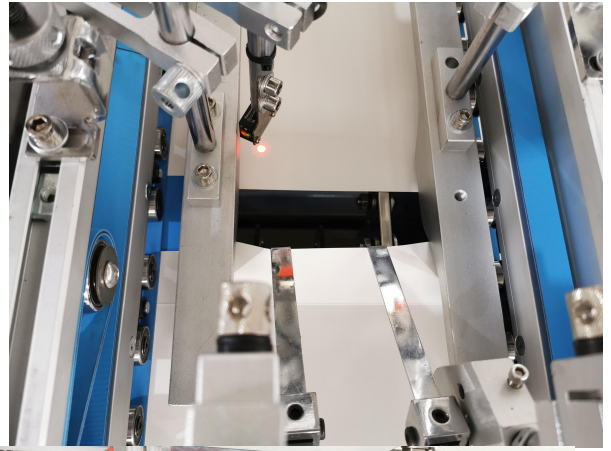
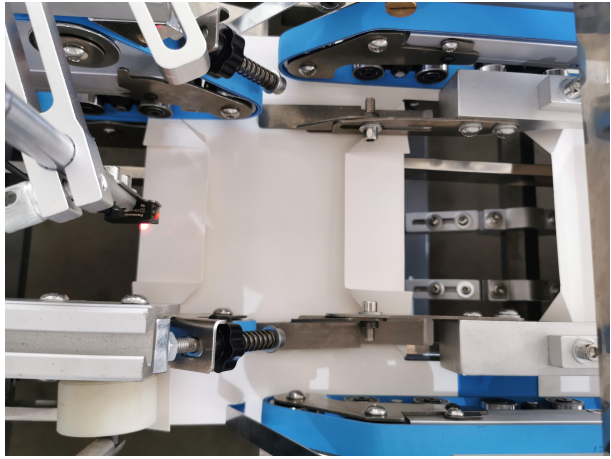
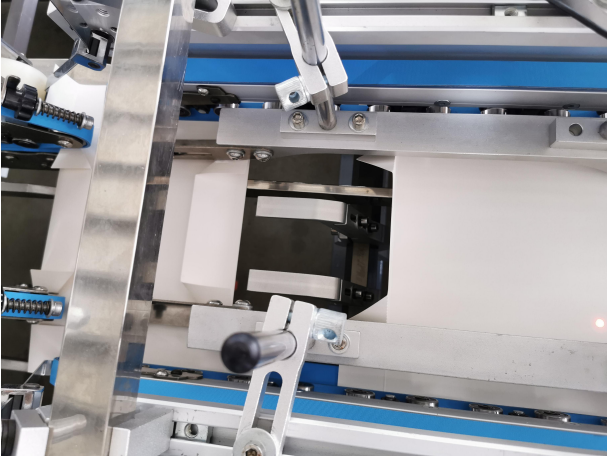
### 14-3-1 Feeder

1. Place the paper in the center of the machine, Move the paper feed belt to the position actually needed under the paper.
2. side panel move to both sides of the paper, But need to reserve 1mm gap, to avoid paper jams.
3. The paper feed knife is placed in a proper position on the paper, Adjust the tightness, Based on the thickness of a piece of paper, can not too loose, it will cause multiple sheets to be ejected at the same time.
4. If the paper is too wide, Auxiliary pressure roller can be used to support the paper.
5. If the paper does not come out smoothly, Can use a vibrator to assist.

### 14-3-2 Alignment section and prefold section

1. According to the creasing line of the box, adjust the carrier.
2. If the box is tilted, adjust it with reference to the adjustment method of the alignment guide part.
3. When entering the folding section, adjust the position of the folding section according to the box creasing line.
4. Install the servo component as shown in Figure

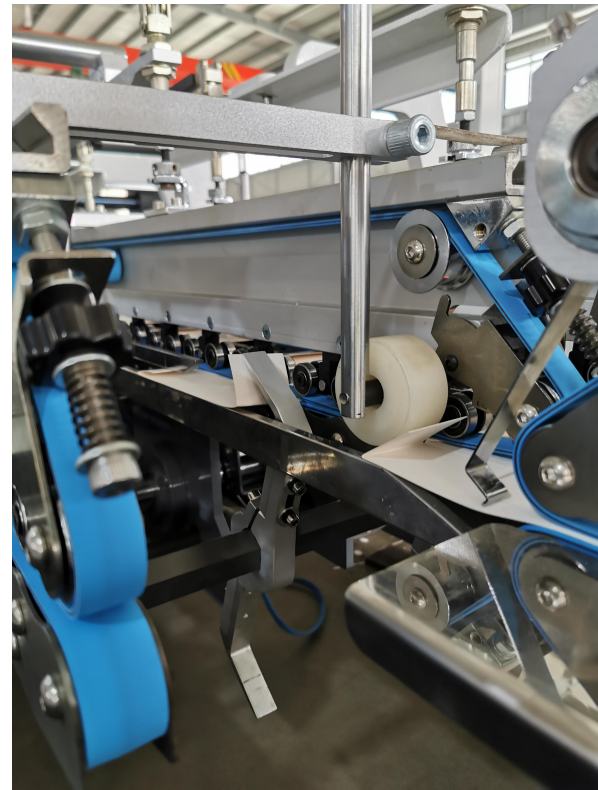


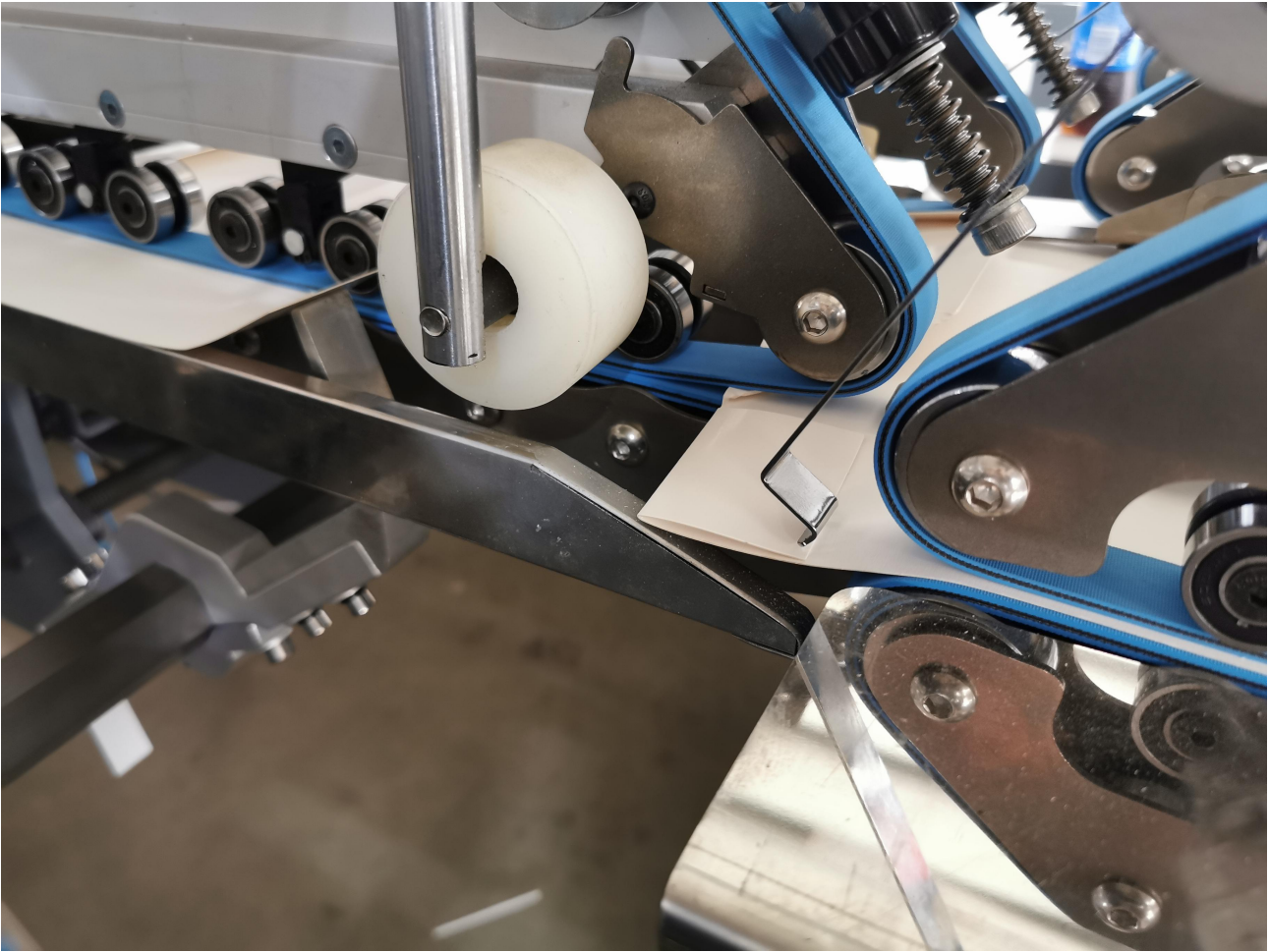




### 14-3-3 Bottom section operation and icon description

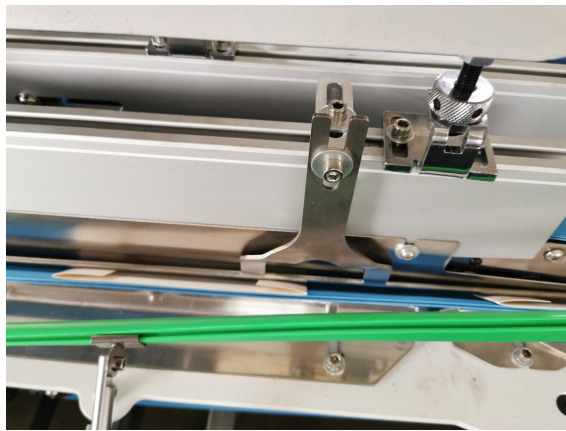
1. Install the hook bottom assembly and servo assembly as shown in the figure, Adjust the position of the support plate with the box-shaped creasing line.





#### 14-3-4 Folding section operation and icon description

1. Install folding belt as shown, Installation auxiliary strip and spray gun position (2 spray guns are required at this position)
2. The position of the spray gun is behind the upper pressure belt, Before entering the folding belt, The best position is when the two sides of the paste are at an angle of about 75 degrees., After spraying the glue, use the folding belt to bend the carton into shape.

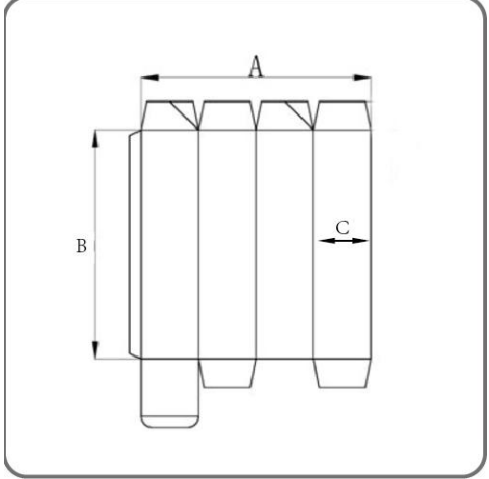


## lock bottom box operation

### 15-1 Safety precautions

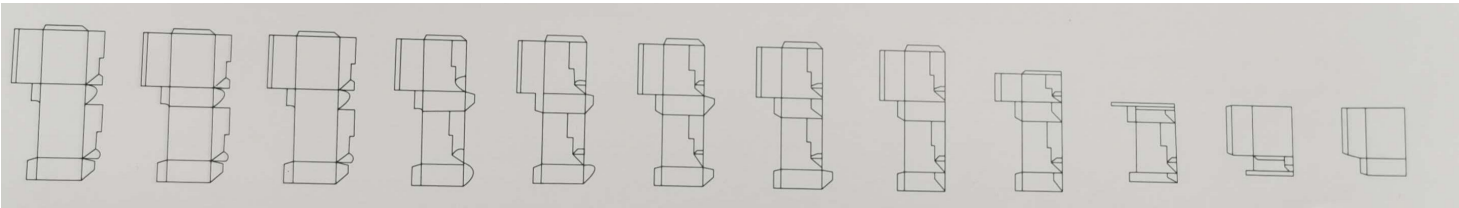
1. Please confirm the position of the emergency stop switch before operation.
2. Be familiar with the meaning of all warning signs.
3. Understand the operation methods and functions of all switches and buttons.
4. Only after confirming that the machine is stopped, then you can reach into the machine for adjustment
5. Must know how to cut off the main power supply.
6. When the user replaces, please pass the current state of the machine to the next operator, and confirm that there is no abnormality in the machine.
7. Make sure that all emergency stop switches can operate normally.
8. Confirm that there are no tools, etc. in the machine.
9. The operator must be neatly dressed, do not lead the tie, the sleeves must be buttoned up, and there must be no overhangs on the body to prevent the machine from being caught.
10. Nothing should be placed on the operator's jacket pocket to prevent falling into the machine when bending down.
11. When you feel tired or uncomfortable, please stop operating this machine.
12. Confirm that no one else is in the machine.

## 15-2 size

Bottom-lock box		
Model	2800Type	
A	750-2700	
B	250-1300	
C	40-1200	

## 15-3 lock bottom box

### Illustrated

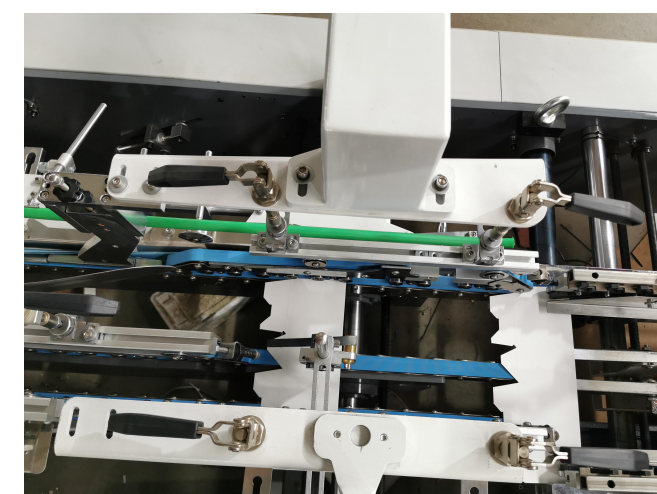


### 15-3-1 feeder operation and icon description

1. Place the paper in the center of the machine, Move the paper feed belt to the position actually needed under the paper.
2. side panel move to both sides of the paper, But need to reserve 1mm gap, to avoid paper jams.
3. The paper feed knife is placed in a proper position on the paper, Adjust the tightness, Based on the thickness of a piece of paper, can not too loose, it will cause multiple sheets to be ejected at the same time.
4. If the paper is too wide, Auxiliary pressure roller can be used to support the paper.
5. If the paper does not come out smoothly, Can use a vibrator to assist.

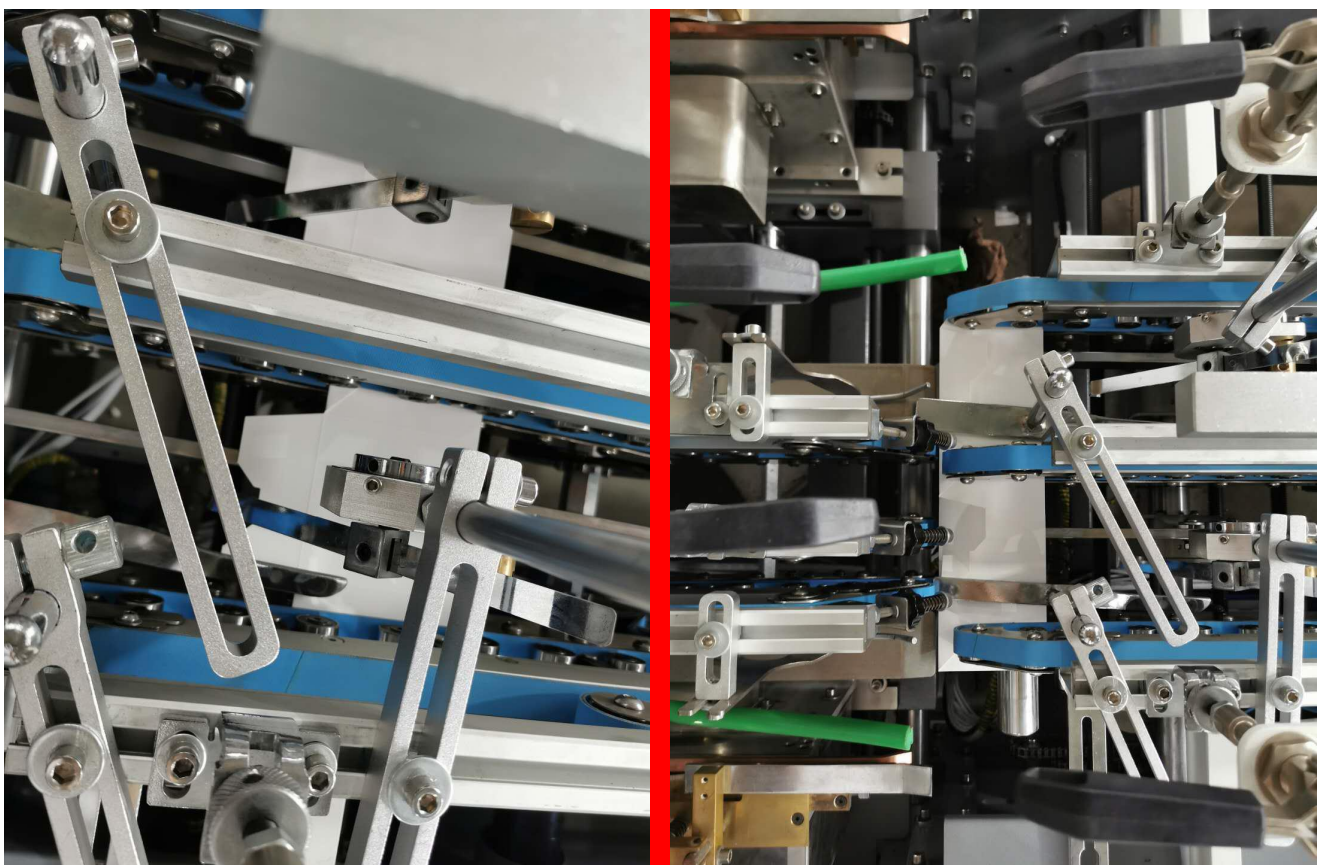
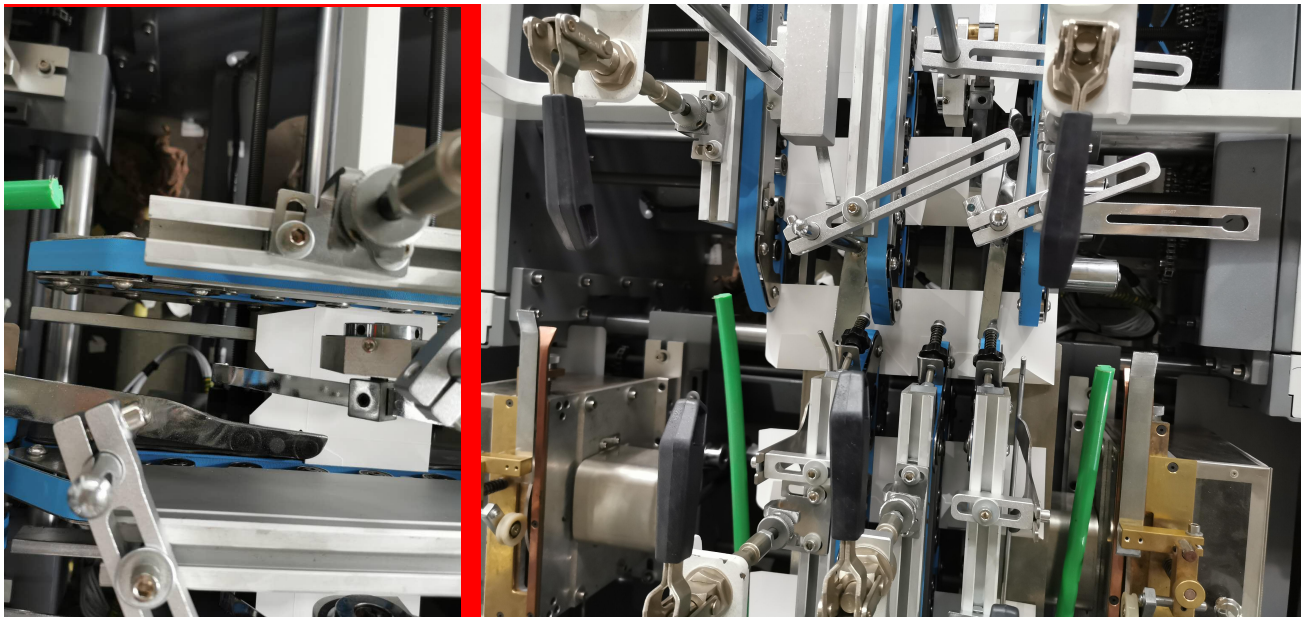
### 15-3-2 folding section operation and icon description

Adjust the position of the carrier with the box-shaped creasing line, Install right folding knife assembly/left folding knife assembly.



### 15-3-3 lock bottom section operation and icon description

Install the hook bottom assembly ,According to the creasing line of the box, adjust the carrier.



### 15-3-4 folding section Operation and icon description

Install folding belt as shown, Installation auxiliary strip, According to the creasing line of the box, adjust the carrier.

