



# **HIGH-SPEED SPIRAL DOOR INSTALLATION MANUAL**

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## NOTICE TO USERS

In order to make it convenient for you to use this manual, an index directory is set in each structure part. If you need to query the contents of the corresponding structure part, please first find the corresponding assembly part from the directory, then find the corresponding page number, and open the corresponding part to read and use.

### 1 on site product acceptance

1.1 the product quantity is consistent with the order requirements.

1.2 the outer packing surface is intact, the turbine mechanism is packed independently, a pair of columns are packed with cardboard respectively, and the accessories are packed in cartons, and the packing information sheet is consistent with the product number.

1.3 after the open box acceptance of product accessories, if the list is inconsistent with the goods, take photos and cable to our company.

### 2. Precautions and warnings

Notes and warnings have specific meanings in this manual:

Note: the operation method is further explained, and the user's attention is reminded to avoid unnecessary damage caused by improper operation.

Warning: it is emphasized that failure to operate as required will damage the equipment or cause serious losses, regardless of the warning content, which may cause permanent mechanical damage or personal injury.

### 3 statement

3.1 if you do not operate according to the instruction of this manual and cause damage to the components or other losses, you shall be responsible for the consequences.

3.2 if the parts are replaced without authorization of the company, the company has the right to refuse the warranty, and the losses caused by the replacement of parts shall be borne by itself.

3.3 do not install or operate the product without carefully reading this manual. If serious mechanical damage or personal injury is caused, the consequences shall be borne by yourself.

3.4 in case of any abnormal situation during the use of the product, please refer to the "troubleshooting" section of this manual. If the fault can not be solved after troubleshooting, please contact the authorized after-sales service center of our company as soon as possible.

## CHAPTER 1 - INSTALLATION PREPARATION

### 1.1 PERSONNEL

1.1.1 More than three installers.

1.1.2 The electrical wiring is operated by professional personnel with certificate, and conforms to the relevant national construction regulations.

#### NOTE

- Installation personnel shall receive safety and installation training to ensure safe operation and installation quality.
- Make sure earthing before electrical operation.
- Electrical wiring shall be carried out by professional personnel (with certificate), and the operation regulations and on-site operation requirements shall be observed.
- Do dimension measurement and checking before installation.

### 1.2 SITE ENVIRONMENT

1.2.1 Make sure there are no obstructions around the door opening during installation.

Place the notice of "No irrelevant personnel and vehicles".

1.2.2 Keep the bottom of both columns in the same level with the floor.

1.2.3 The product configuration meets the site environmental requirements.

### 1.3 INSTALLATION TOOLS REQUIRED

1.3.1 Electric drill:  $\Phi$  5.2、 $\Phi$  8、 $\Phi$  10、 $\Phi$  12. If the wall is steel, the tail drill bit shall be used. If the wall is concrete, impact drill and drill bit shall be used.

1.3.2 Various kinds of gaskets: the corresponding gaskets used for uneven ground.

1.3.3 Insulating tape.

1.3.4 Laser level, tape (0-10m).

1.3.5 Hammer, wood block, crowbar.

1.3.6 Various kinds of hand tools (pliers, screwdriver, multimeter, electric iron, etc.).

There are two wrenches No.10, two wrenches No.13 and No.14, four wrenches No.16., two wrenches No.17, one wrench No. 21, one adjustable wrench, one pair of flat pliers, two cross screwdrivers, One Slotted screwdriver, 5.2/8/10/12 Drill bit, M8/M10 Taps, M8/M14 Hammers, two electric drills and two polishers.

1.3.7 Socket, Hexagon wrench.

1.3.8 Power line 40 meters or so and temporary distribution box (wiring tool).

1.3.9 Scaffold: Height = Door height - 1000mm.

1.3.10 Forklift (the height of lifting exceeds the height of door opening):

- Lifting load of more than 2T
- Minimum height of lifting: the total height of the door minus 800mm
- Wider fork head: the distance between the fork heads on both sides shall be over 1200mm
- It is better to move side

#### **1.4 ENSURING INFORMATION**

1.4.1 The construction area is the correct installation site, and relevant construction permission has been obtained.

1.4.2 Check the site installation conditions to ensure that there is no obstacle at the lintel position (fire passage, air conditioning pipe, power supply line, etc.) to avoid installation interference.

1.4.3 Prepare the materials for installation and ensure the smooth transportation channel of the equipment.

1.4.4 Confirm that the power supply has been correctly arranged to the position of the control cabinet, and that the power supply meets the required standard, and can cut off the power independently without affecting the operation of other equipment on site.

1.4.5 In case of any discrepancy between the measured size and the hole size, the installation shall be stopped immediately and the company shall be contacted as soon as possible.

### NOTE

When installing the multi doors, please make sure that the control cabinet and the door body parts have the same factory number. The corresponding factory number is marked on the control cabinet factory label and the door body factory label (outside the column). In particular, the coding of wireless airbag transmitter and receiver should be one-to-one corresponding, otherwise it needs to be re coded.

## 1.5 DOOR OPENING CHECK

### NOTE

- The size error is allowed within 3mm between the accurate door opening and measurement opening.
- The measurement deviation of the horizontal and vertical dimensions of the wall is within 3mm. If the error is large, the hole needs to be leveled.
- If the actual size of the hole is not consistent with that measured by the measuring table, Lafayette company shall be contacted at the first time, and the user shall actively cooperate to provide props and other auxiliary tools for finishing the hole.
- Use infrared to find the elevation and the lowest point on the ground in the position of the column to be fixed.
- Calculate the installation space to be reserved on each side. It is generally recommended to reserve 10 cm ~ 15 cm on the motor side; 5cm ~ 10cm is reserved at the non motor side.

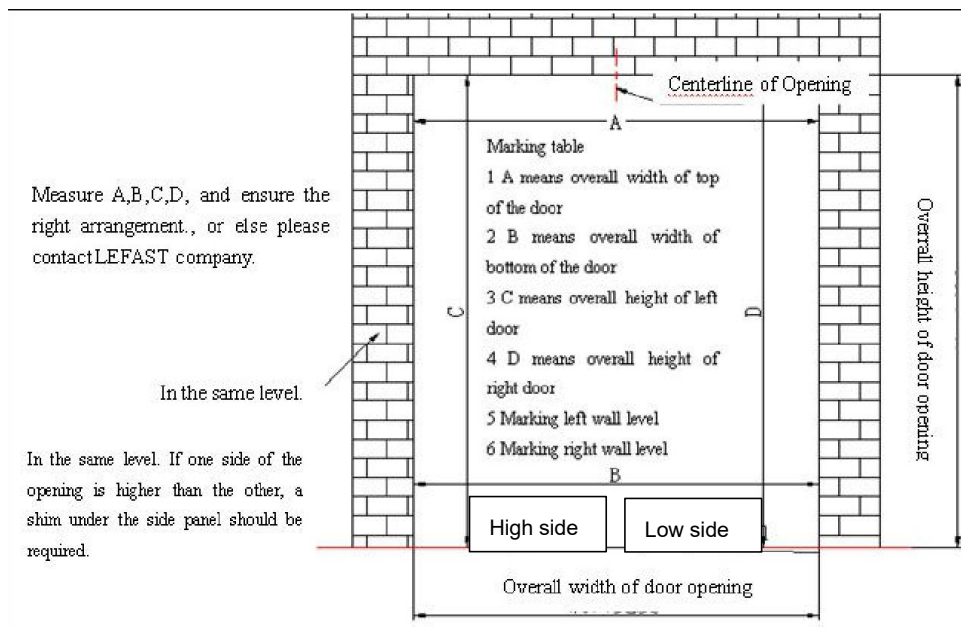


Figure 1-1

1.5.1 Structure diagram (take **The motor is located on the left side** as an example)

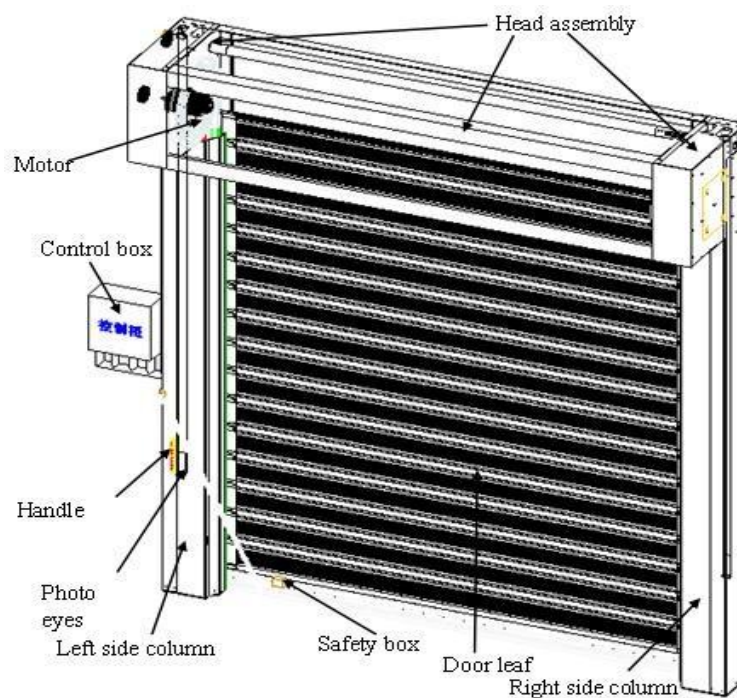


Figure 1-2

## CHAPTER 2 - COLUMNS INSTALLATION

### WARNING

- It is forbidden to pass-by during the installation process.
- It must be showed as “KEEP AWAY” & “DANGER” ,and operated as the working requirement.
- It is forbidden to drill on the control box.

### 2.1 MAKE MEASUREMENT

2.1.1 Measure the width(W) of the head assembly and make signs.。

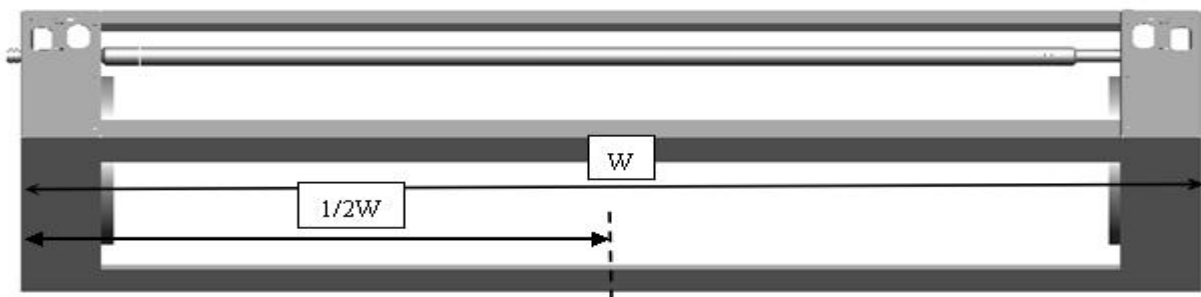


Figure 2- 1

2.1.2 Calculate the inside dimension of two columns and mark the approximate position on the ground with marker.

### NOTE

Inner dimension of installation opening =Width of Spiral (W) + Thickness of column plate (2.5 or 2mm) x 2 - Width of column foot plate x 2

2.1.3 Measure the ground levelness (error  $\leq 3\text{mm}$ ) at the installation position of columns on both sides of the door opening; If the error is more than 3mm, find out the corresponding thickness of the backing plate for standby. At this time, it is recommended to install the column with relatively high horizontal size (no need to raise it)



## NOTE

- If the installation starts from the column with high horizontal dimension, the damage to the ground can be avoided, but after the side door with high column falls, there will be a gap between the bottom and the ground.
- If the installation starts from the column with low horizontal dimension, the gap can be avoided, but the high side of the column may damage the ground.

## 2.2 PHOTO EYES INSTALLATION

2.2.1 Photo eyes and fixed plate fixation: Taking the left fixed plate of photo eyes as an example

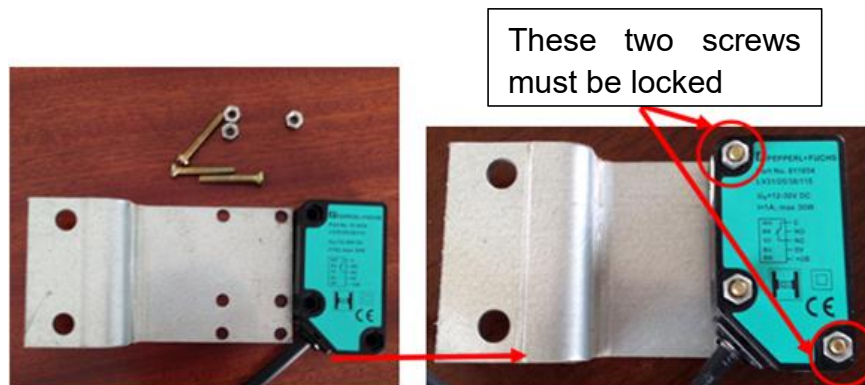


Figure 2-2

2.2.2 Mount the fixed plate of photo eyes

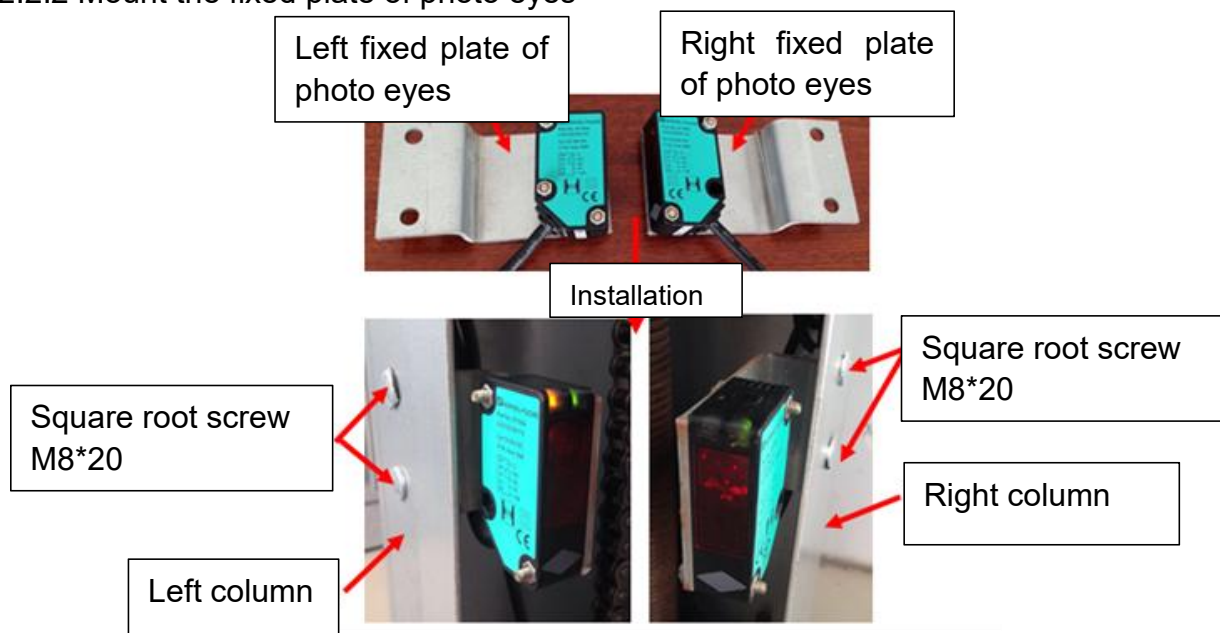


Figure 2-3

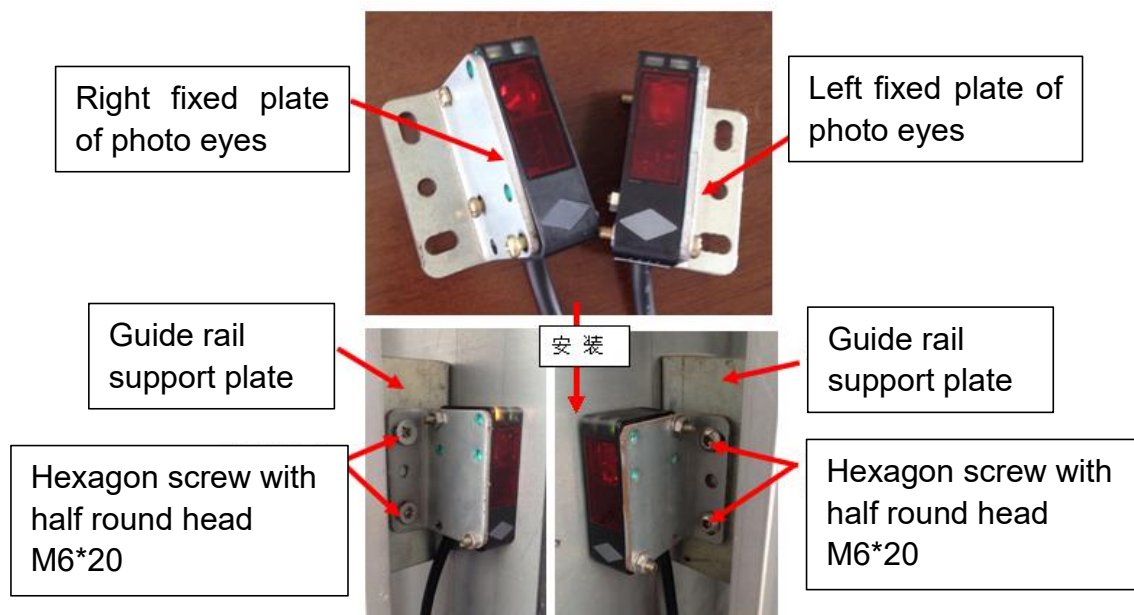


Figure 2-4

## 2.3 COLUMNS INSTALLATION

2.3.1 Take right side of column installation for example. Figure 2-5

2.3.2 The perpendicularity of the column is measured with the magnetic line drop (the error is less than 2mm), and then it is fixed up and down with expansion bolts or drill tail screws (if electric welding must be used on site, this method is not conducive to the maintenance and replacement of the column in the later stage)

2.3.3 After the first column is installed, install the second column in the same way according to the size in step 2.1.

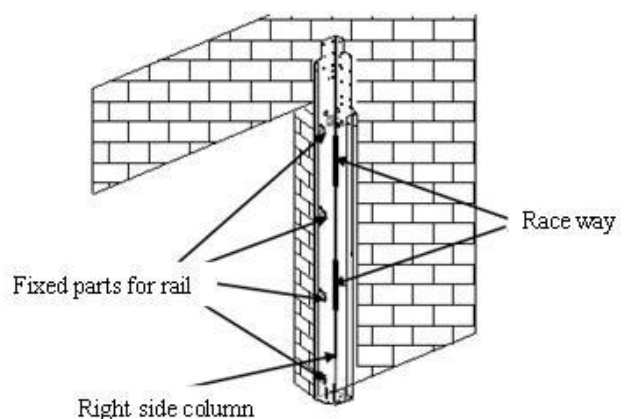


Figure 2-5

### NOTE

Width of outer opening of top two vertical columns = Width of spiral (W) + Thickness of column plate x 2 + 3mm

## 2.4 FIXATION

2.4.1 Take the installation of the right column as an example, the column is fixed with the wall: the column is fixed on the wall of the installation plane according to the position of the installation hole. When the wall is of brick concrete structure, the expansion bolt (M100) × When the wall is of steel structure, it shall be fixed with drilling tail nail.

2.4.2 The column is fixed to the ground: according to the installation hole position of the column foot plate, the expansion bolt (M100) is used × 120) fixed.

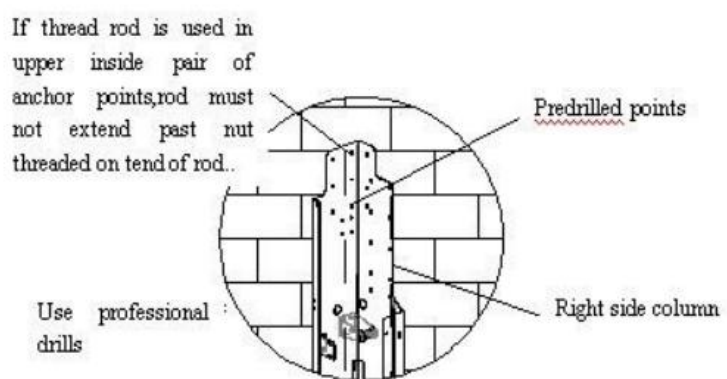


Figure 2-6

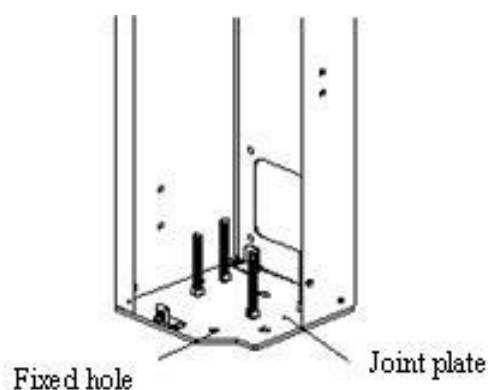


Figure 2-7

### WARNING

When fixing, be sure to use special electric drill!

Be sure to fix the column firmly, so as to avoid safety accidents caused by loose bolts!

## 2.5 CHECK

2.5.1 The column is fixed firmly.

2.5.2 The diagonal dimensions between the inner sides of the columns are equal.

### WARNING

The diagonal error is within 4mm; The horizontal width error is within 2mm.

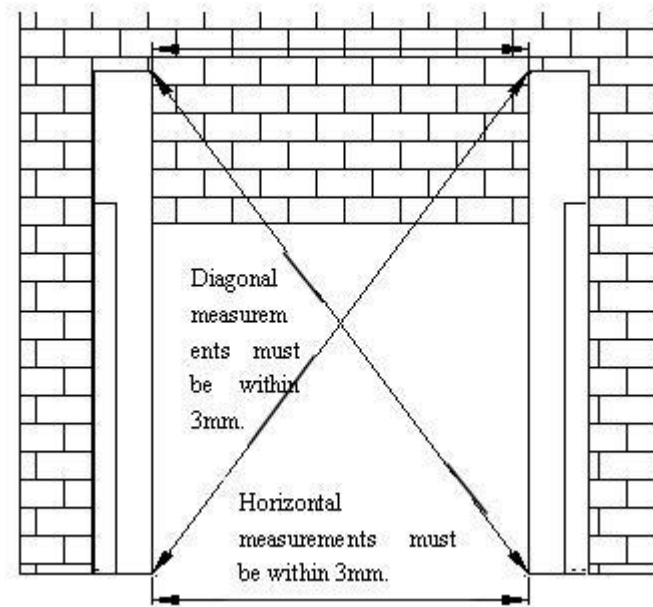
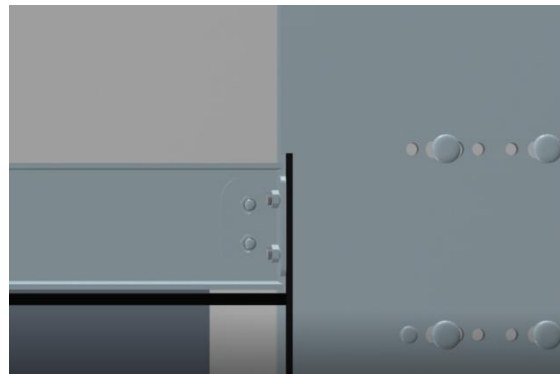
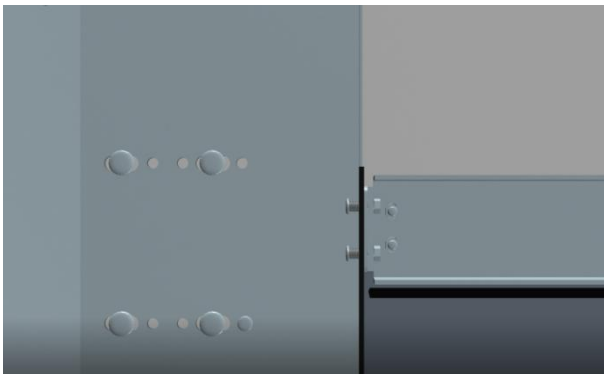


Figure 2-8

## 2.6 INSTALL THE TOP SEAL BRUSH

Fixed on the top of the columns on both sides, as shown in the pictures below.



## CHAPTER 3 - INSTALL HEAD ASSEMBLY

### 3.1 PRE-COIL BELTS

3.1.1 Take out the belt with 1~1.5 circles pre-coiled on the shaft, and tie the belt in the front of the spiral to prevent the belt from loosening.

#### WARNING

The wrong coiled circles will lead to the lose of door life cycles.

### 3.2 INSTALL TRANSMISSION CHAIN

3.2.1 Hanging the chain on the transmission gear of the spiral mechanism. As shown in Figure 3-1.

### 3.3 CONNECT CHAIN

3.3.1 Pass the chain through the bottom chain wheel. Connect two ends of the chain with a connecting plate, and the connecting plates on both sides must be at the same level when fix the plate with the door panel connector. As shown in Figure 3-2.

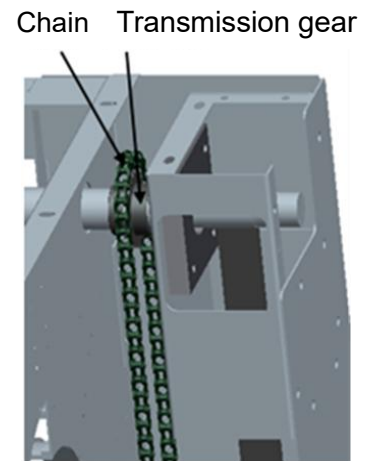


Figure 3-1

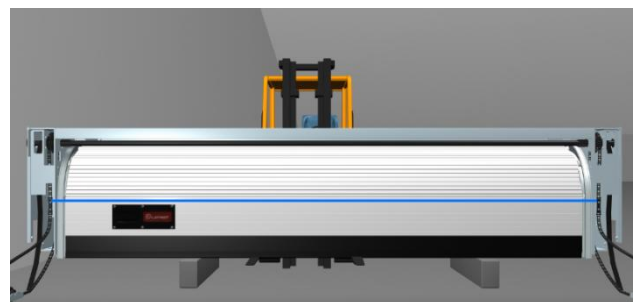
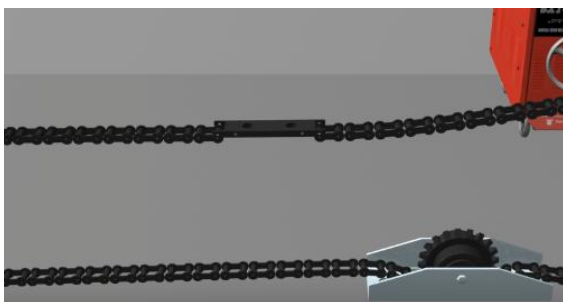


Figure 3-2

3.3.2 Fix the chain connecting plate with the door panel connector. Fasten with M10\*20 bolts. As shown in Figure 3-3. (at this time, the bottom chain wheel and foot plate are not fixed temporarily)

3.3.3 Place the spare chain inside the spiral tank with coiling.

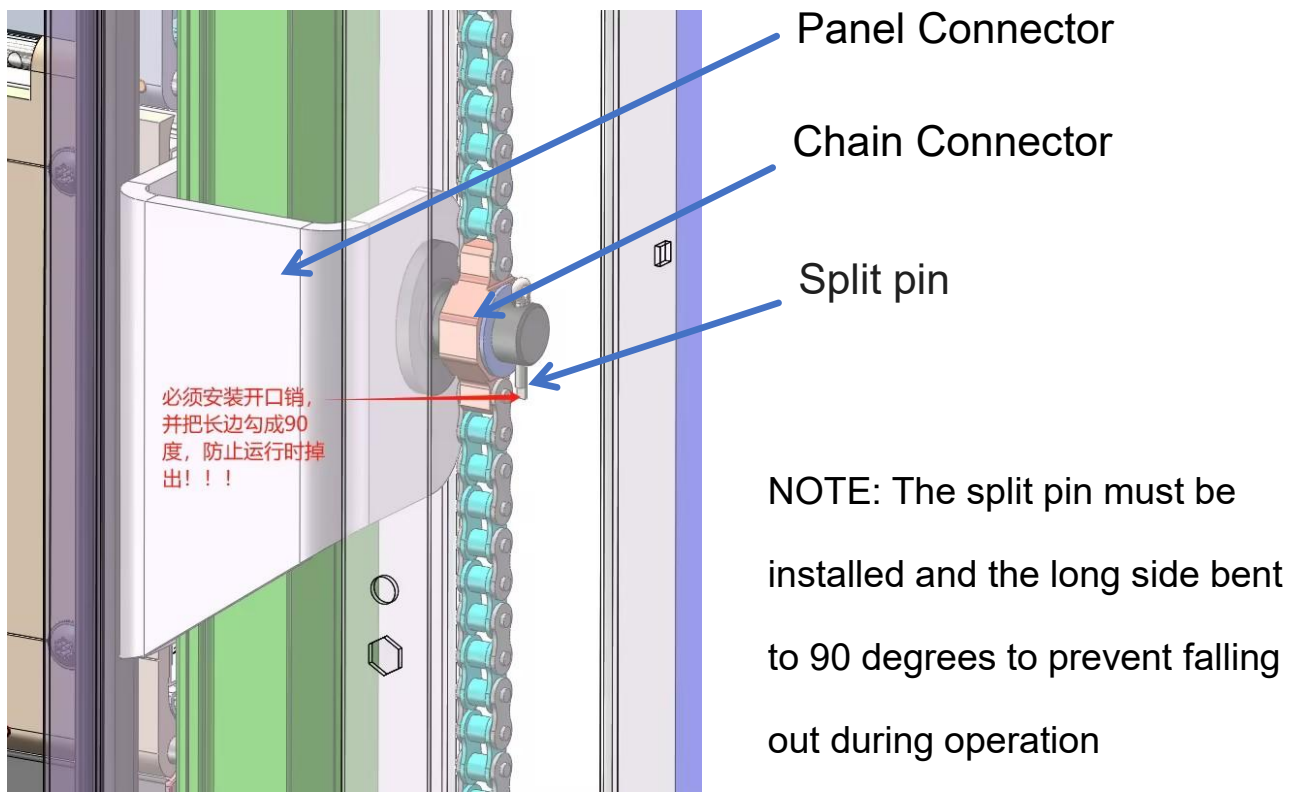


Figure 3-3

### 3.4 INSTALL LIMIT DEVICE

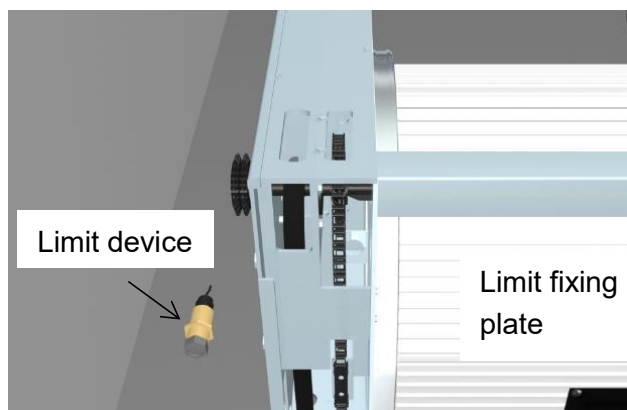


Figure 3-4

Figure 3-5

3.4.1 Mounting limit device. As shown in Figure 3-4.

3.4.2 Mounting position of limit induction plate. As shown in Figure 3-5.

3.4.3 The brown cable is connected to 24v+, the blue cable is connected to Common port, and the black cable is connected to the origin limit input terminal 17. Normally, the origin limit is off, and the light is on when a metal object is sensed.

#### Notice

The distance between the proximity switch and the limit baffle should be at 5-8mm, and the gap should not be too large.



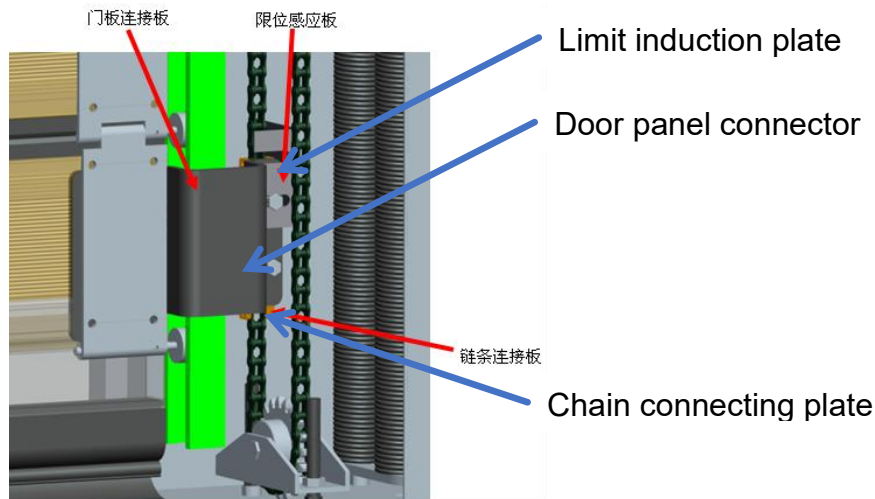


Figure 3-5

### 3.5 INSTALL HEAD ASSEMBLY

#### WARNING

Before installation, it is necessary to remove wall obstacles or protruding objects in appearance to avoid installation obstruction or safety accidents!

If the head assembly is installed with a crane, make sure that:

1. The crane sling cannot come out from the back of the head assembly, which will cause the spiral to fail to install;
2. When wearing crane sling, the shaft on the head assembly shall not be stressed to prevent the deformation of the shaft.

3.5.1 Lift the head assembly to a suitable position with a forklift and fix the head with the columns.

3.5.2 The center of spiral mechanism coincides with the inner center of columns.

### 3.6 FIXING

3.6.1 Two holes special for location without screw. *As shown in Figure 3-6.* Fix the head assembly and the columns with external hexagon screw (trim pad) (M10 × 25) screws at both sides. *As shown in Figure 3-7.* There are not less than 7 screws between the head assembly and the columns at each side.



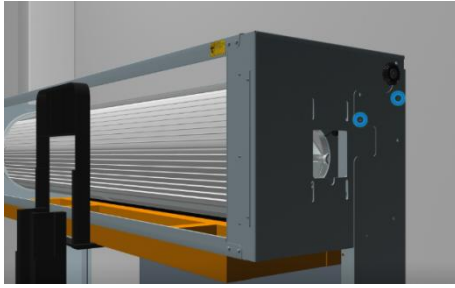


Figure 3-6

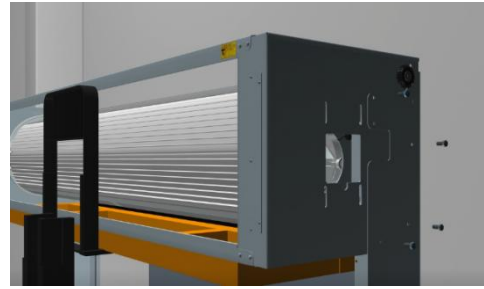


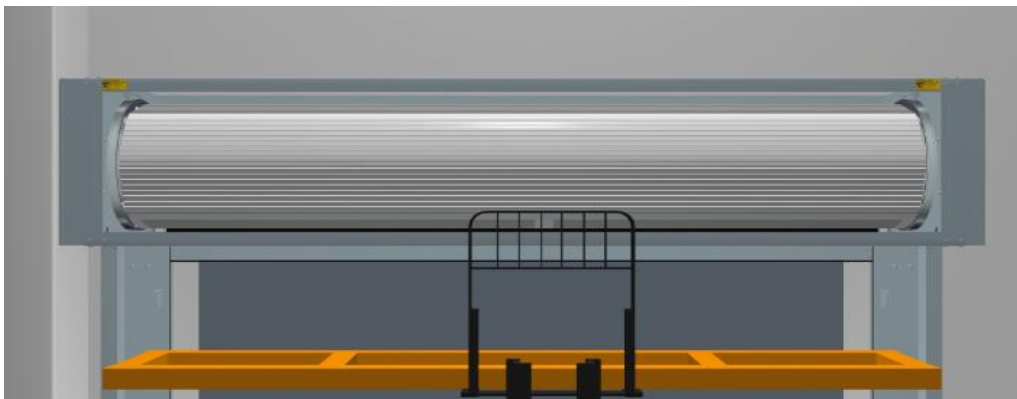
Figure 3-7

3.6.2 Special bracing structure is an option (not standard configuration), install or not base on the site condition.



### 3.7 REMOVE BOTTOM BEAM

Confirm the connection and reinforcement is strong enough, the remove the forklift and the bottom beam under the head assembly.



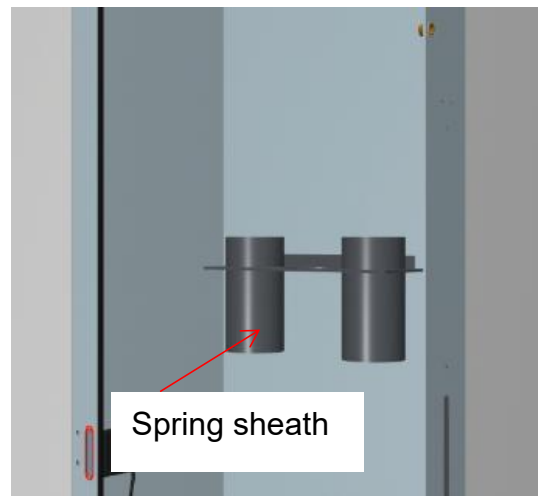
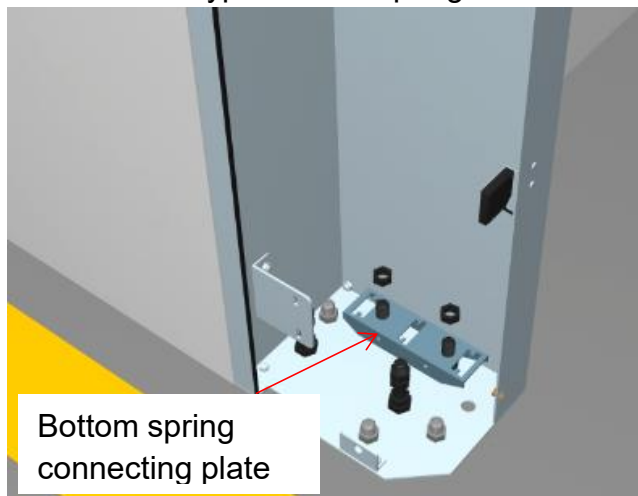
### WARNING

It is strictly forbidden to weld on the spiral mechanism, so as not to reduce the service life of the product and cause safety hazards!

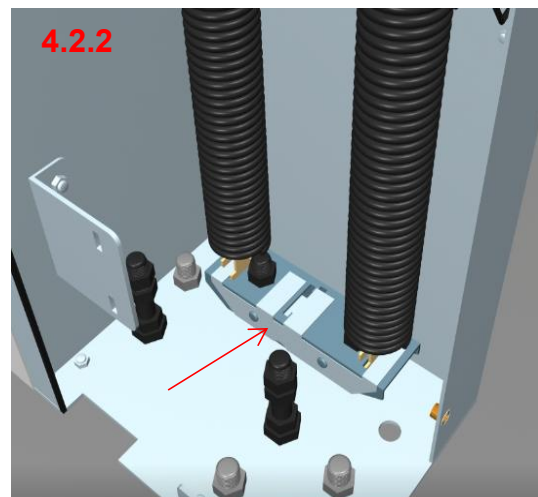
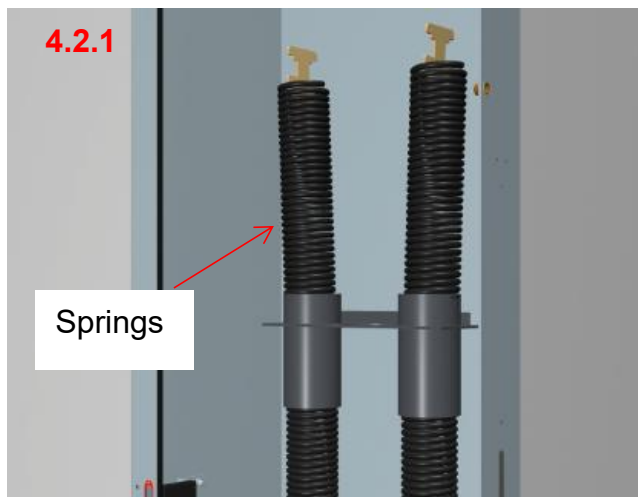
## CHAPTER 4 - INSTALL BELTS AND SPRINGS

### 4.1 FIX THE BOTTOM SPRING CONNECTING PLATE AND THE SPRING SHEATH

Note: BASIC type without spring sheath

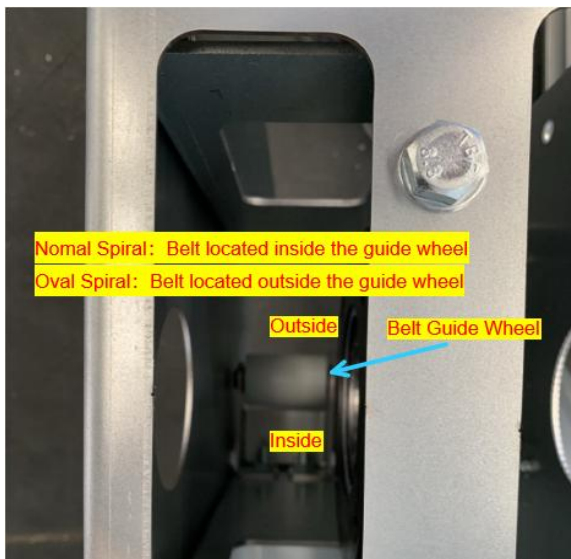
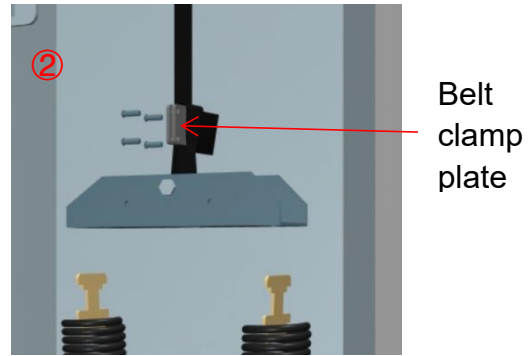
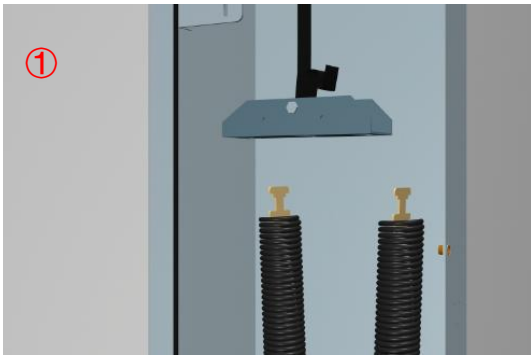


### 4.2 INSTALL THE SPRINGS

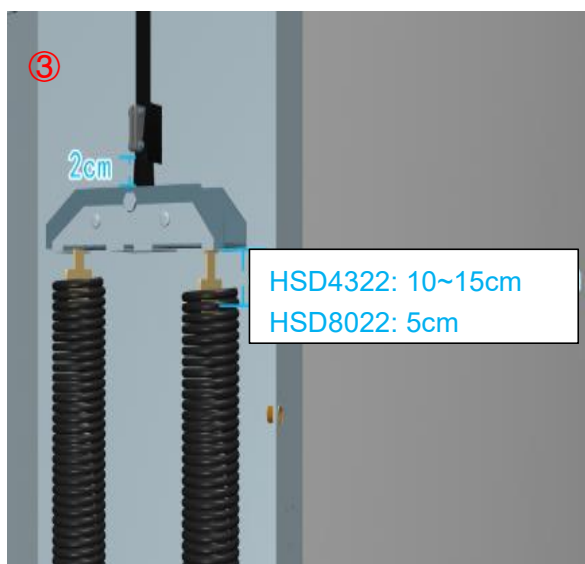


4.2.3 Install the belt clamp plate: it must be fixed according to the method in the video, otherwise the belt and spring will be much easier to break.

The method of fixing the belt clamp plate **for New Model**

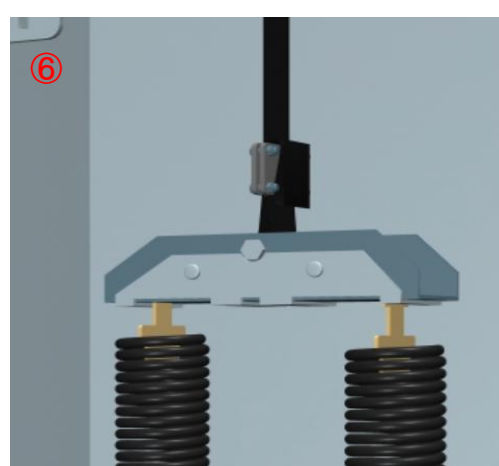
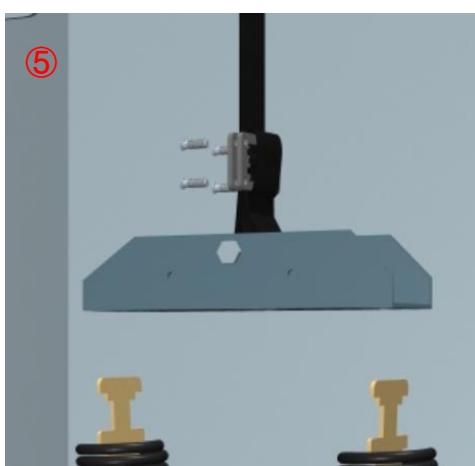
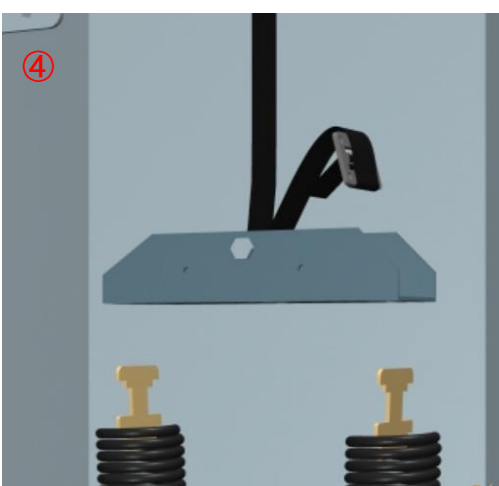
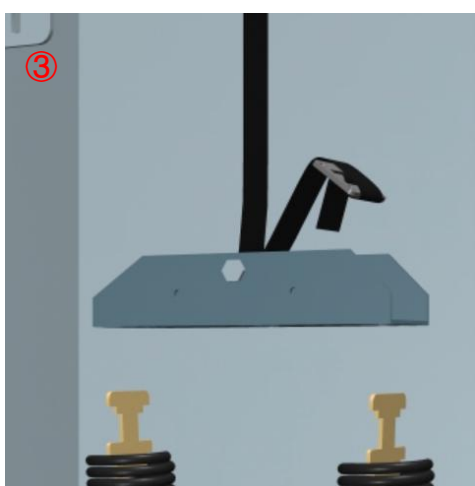
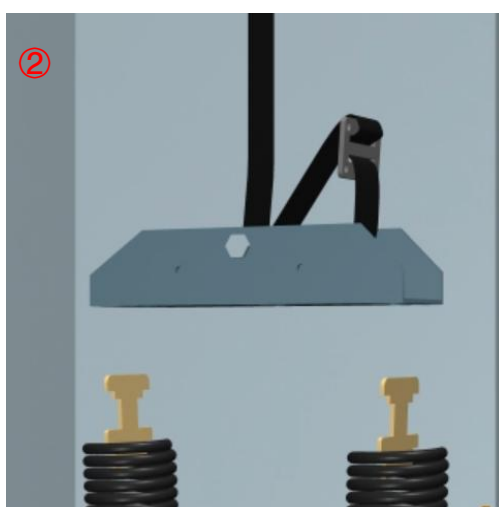
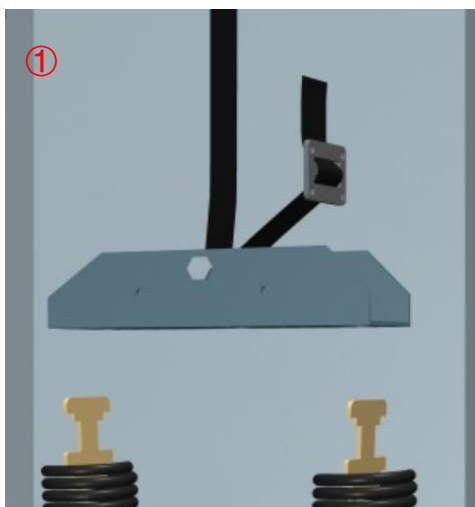


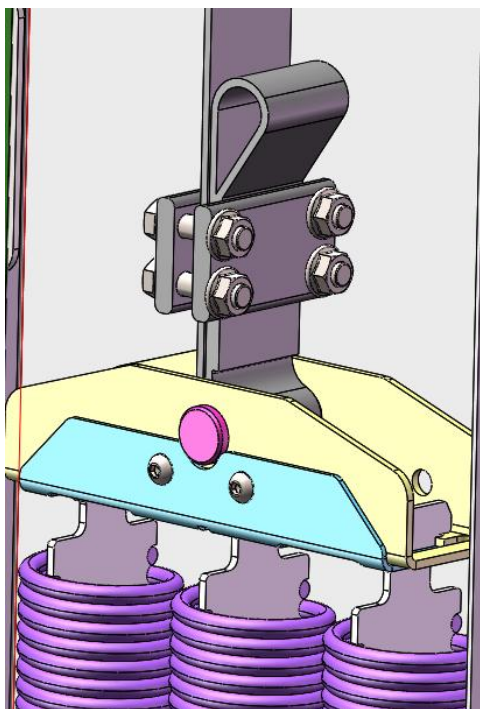
Note:  
For Normal(Round) spiral, the belt should be installed inside the guide wheel.  
For Oval spiral, the belt should be installed outside the guide wheel. Strictly prohibited for the belt in reverse.



Connect the belt clamp plate with the upper spring bracket. For HSD4322, the springs should be lengthened by 10~15cm. For HSD8022, the springs should be lengthened by 5cm.

The method of fixing the belt clamp plate **for Previous Model:**





**WARNING:**

The fixing method of the sling splint must follow the method shown in Figure 4-1; otherwise, the service life of the door will be seriously affected.

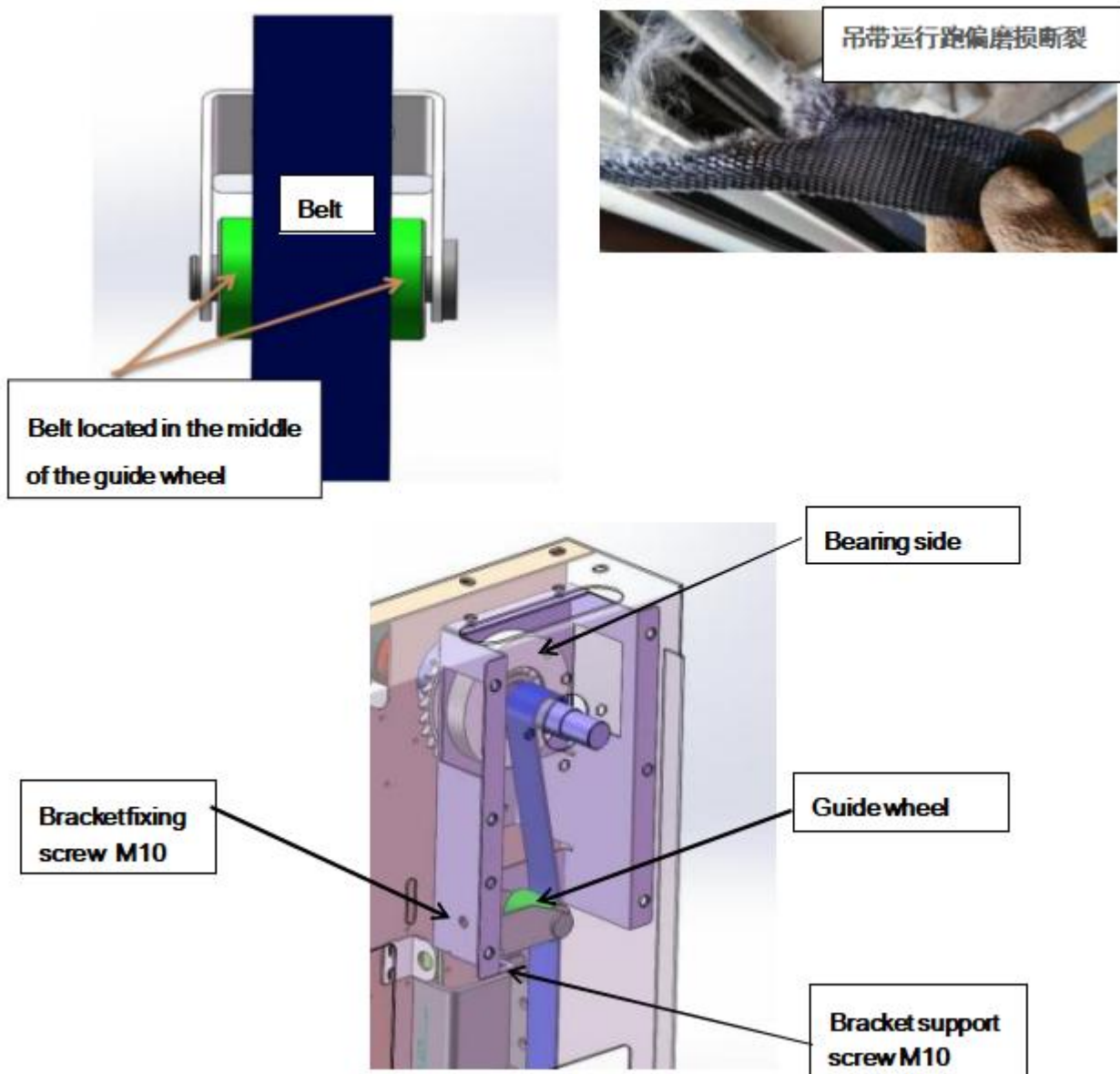
It is forbidden to reverse the belt: when it's round spiral, the belt is installed outside the guide wheel; When it's oval spiral, the belt is installed inside the guide wheel.

Figure 4-1

Round Spiral	Oval Spiral

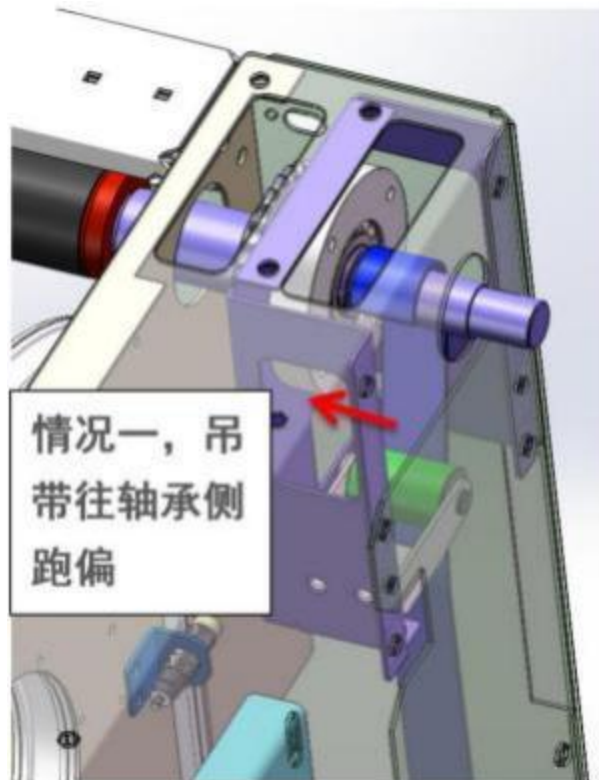
## NOTICE OF INSPECTION OF BELT GUIDE WHEEL

After the installation of HIGH-SPEED SPIRAL DOOR, check the operation of the belt on the guide wheel during manual control mode. During the operation, the left and right sway of the belt shall not exceed 5 mm. If the belt deflects too much, it will rub against the side, causing the belt to wear even break in a short time, as shown in the right figure:





In case of belt running deviation, please adjust the guide wheel as follows:



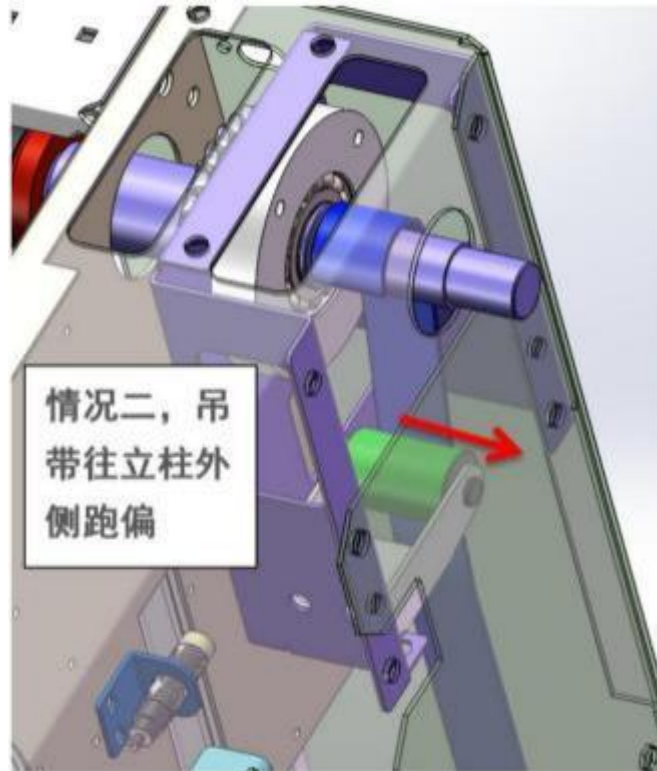
### Case 1

**Case 1:** When the door panel descends, when the belt is wound on the shaft, the belt runs

toward the inner side of the bearing. In serious cases, the belt edge is worn to the bearing. At this time, the belt exceeds the plane of the guide wheel, or even falls out of the guide wheel. At this time, the guide wheel bracket must be adjusted.

#### **Adjustment method:**

Use a 16 # open-end wrench to loosen the two M10 bracket fixing screws (it is not necessary to remove them), tighten the M10 bracket support screws close to the bearing side for half a turn, and then tighten the bracket fixing screws. Run the door panel to observe the operation of the belt. If it is still on the side of the bearing, adjust it according to the above method until the belt is wrapped correctly.



### **Case 2**

**Case 2:** When the door panel descends, the belt runs towards the outside of the column when

it is wound on the shaft. In serious cases, the belt edge is worn to the column plate. At this time, half of the belt is beyond the plane of the guide wheel, and the guide wheel bracket must be adjusted.

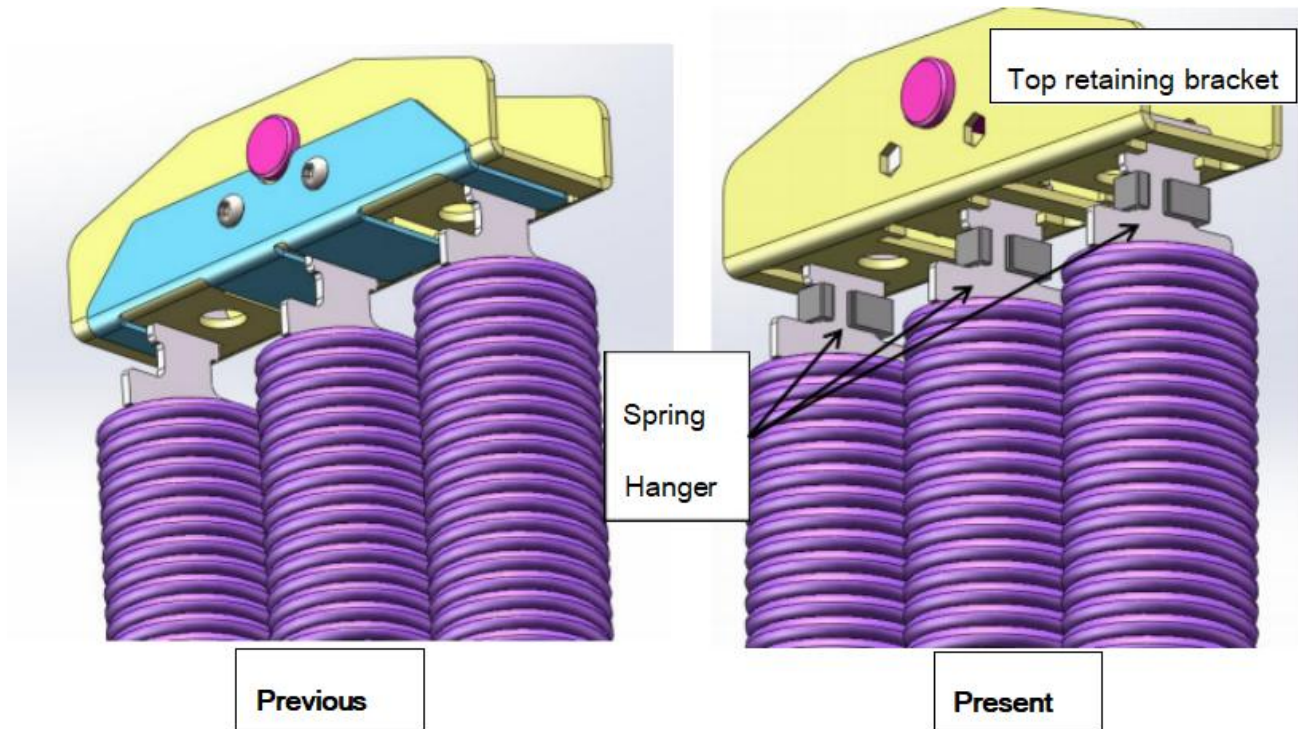
#### **Adjustment method:**

Use 16 # open-end wrench to loosen the two M10 bracket fixing screws (it is not necessary to remove them), then tighten the bracket supporting screws close to the outer side of the column for half a turn, and then tighten the bracket fixing screws. Run the door panel to observe the operation of the belt. If it is still deviated from the outer side of the column, adjust it according to the above method until the belt is wrapped correctly.

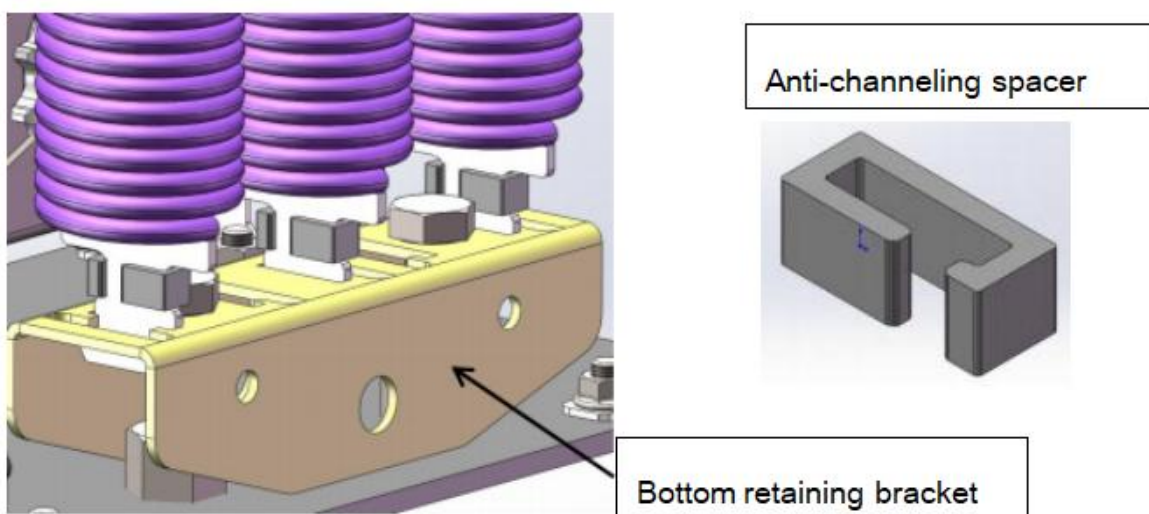
**Note: If the belt is worn, you must contact our representative! The operation of the belt must be checked!!!**



## Method of installation of spring anti-channeling spacer



After the spring retaining brackets are installed in place, install the spring anti channeling isolation column on the top of each spring and the spring hanger on the top.

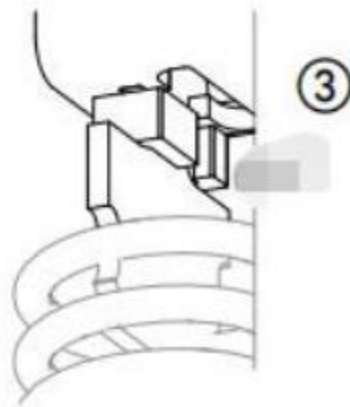
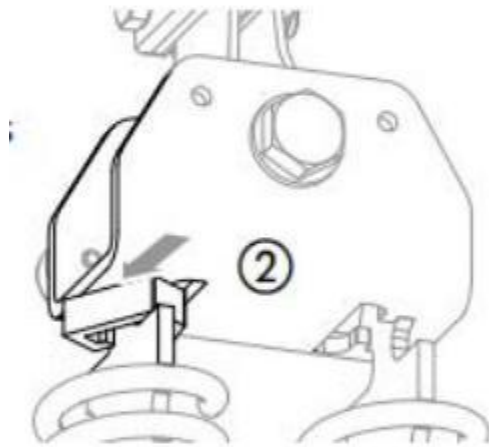


1. Align the gap of the spacer column with the spring hanger.

2. Push the anti-channeling spacer to the spring hanger, and the spacer is elastic and can be bent.

3. Push the short end with force, hear a click, and the spacer is in place.

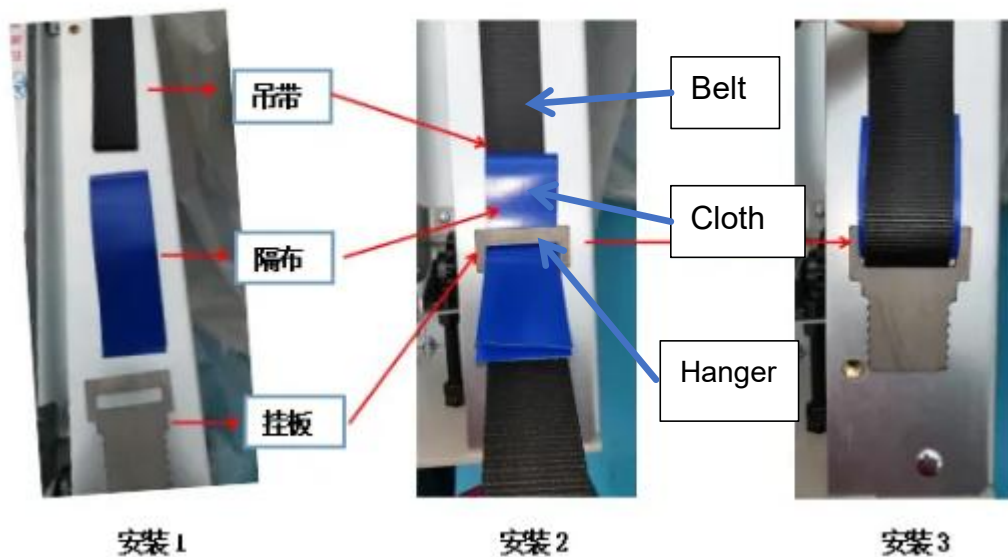
The upper and lower are fixed in the sar



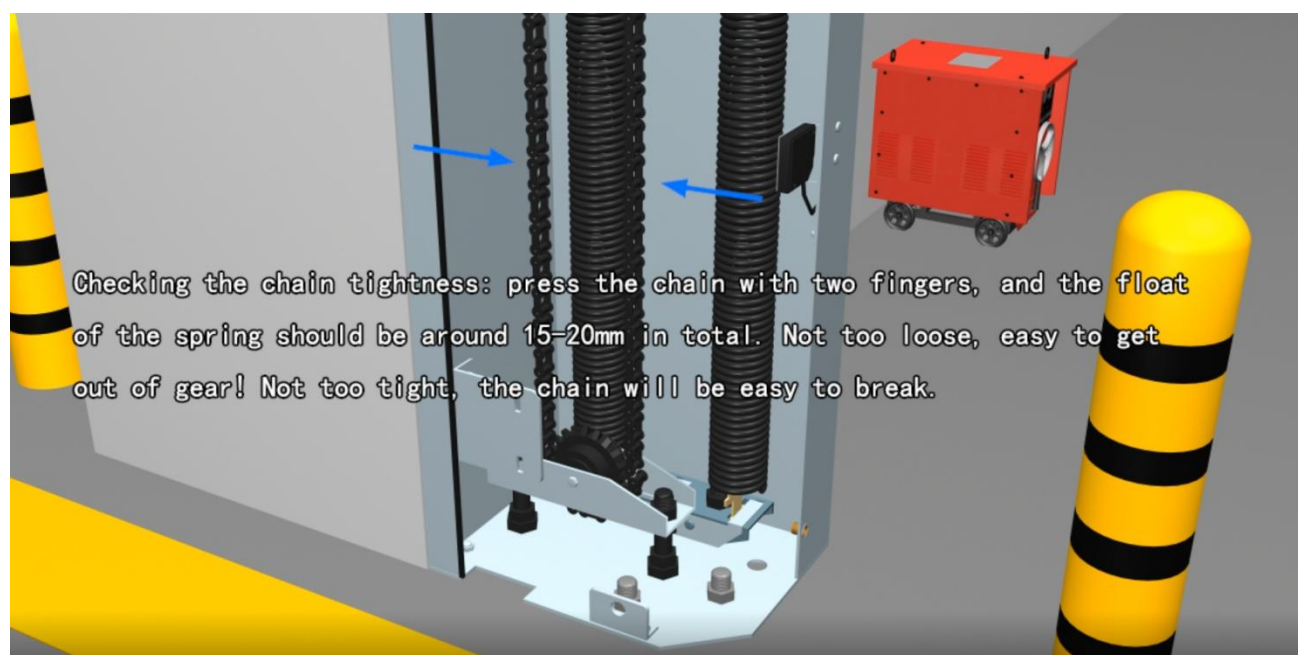
#### 4.2.4 One pcs of spring on one side

The belt is directly fixed on the upper end of the spring, and cloth is used to protect the belt and the hanger as follows.

当硬快门1侧立柱中只有1根弹簧时，由于弹簧螺旋特性，弹簧在运行时上端挂板因旋转会碰撞立柱，综合上述情况，从而取消弹簧上端挂板的配置，更换如下图所示：



#### 4.2.4 Fix chain and bottom sprocket wheel



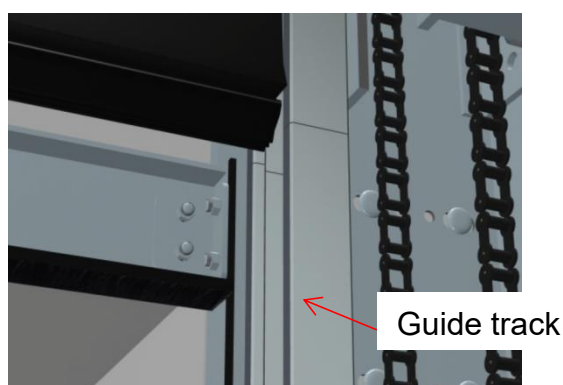
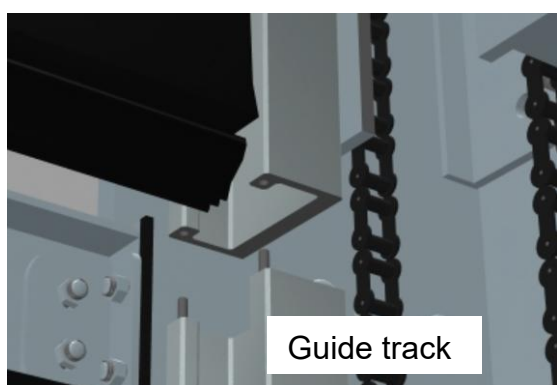
## CHAPTER 5 - INSTALL GUIDE TRACK

### Note

The tracks are divided into straight tracks and light curtain tracks. During installation, please operate according to the actual configuration of the product.

#### 5.1 Insert the track into the spiral guide track.

There must be no gap at the joint, otherwise, the hinge wheels will wear out soon.



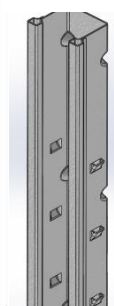
Light Curtain  
Guide Rail



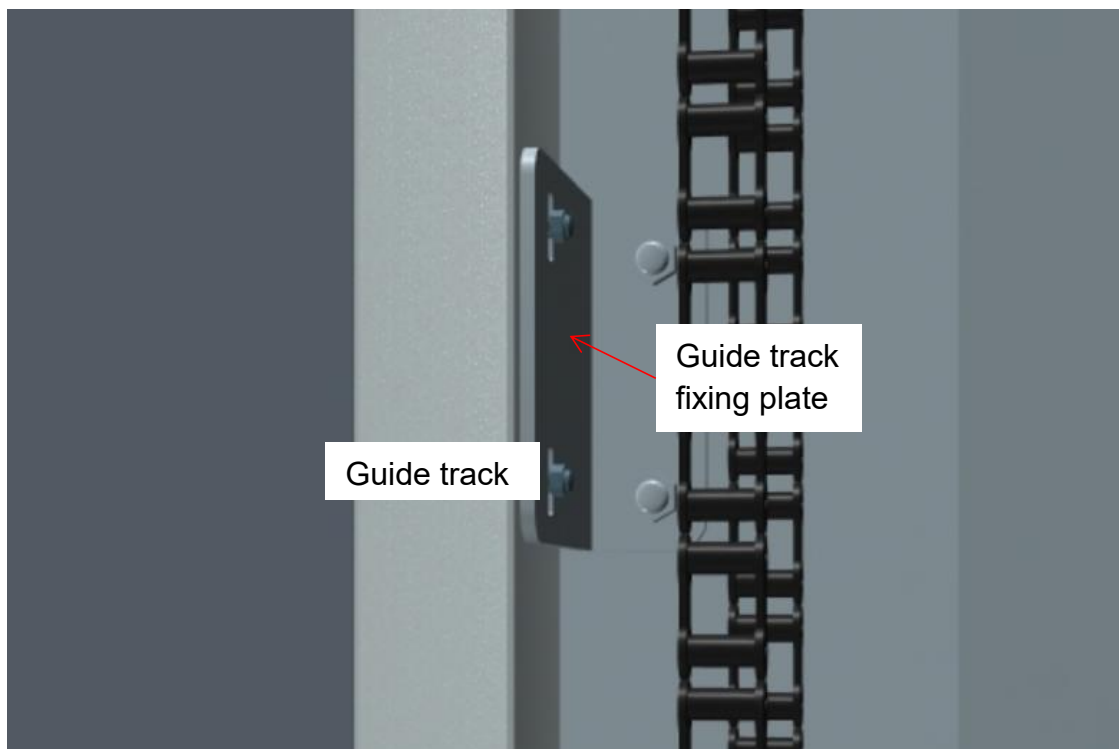
Common  
Guide Rail



Steel Guide Rail



**5.2** Fix the guide track: fix the guide track on the column with guide track fixing plate, and check whether it is vertical with laser level or plumb.



#### Note

The guide wheel of the connecting door plate between the guide track and the spiral moves normally and does not interfere with each other.

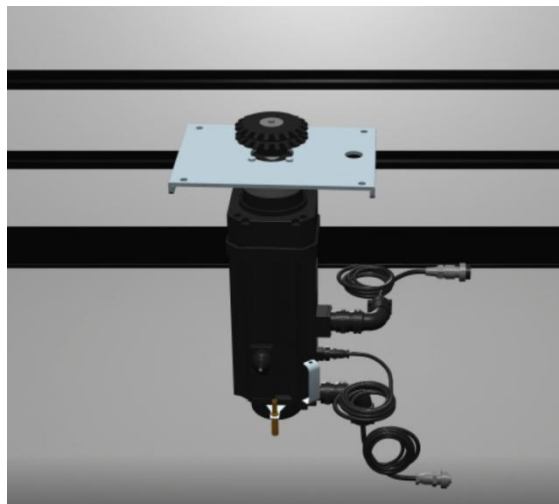
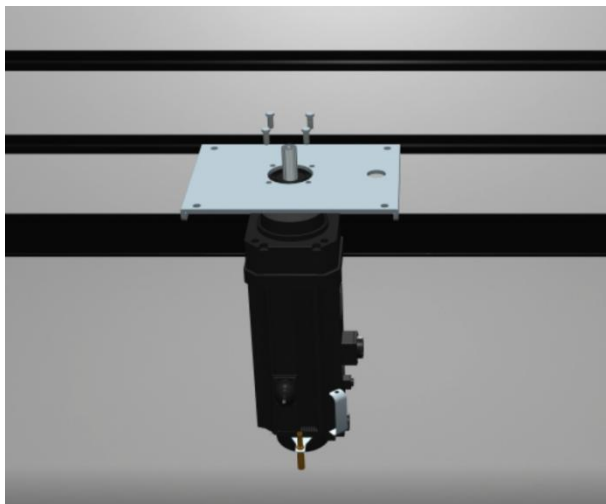
Ensure that the guide track is vertical, and it is strictly forbidden to tilt left and right, front and back, so as not to affect the normal operation of the door.

Checking the spring, belt and chain all settle down, then cut off the connect rope fixed the door panel with the head assembly and pull the door panel down to the bottom and then loosen it. Normally the door can spring up naturally by about 0.5m~1m, and one person can pull up the door panel normally. The door operation should be smooth without noise.

## CHAPTER 6 - INSTALL MOTOR & CONTROLLER

### 6.1 INSTALL MOTOR ASSEMBLY

Fix the plate to the motor with the hole on the plate facing down so as to tighten the motor and prevent the chain from loosening.

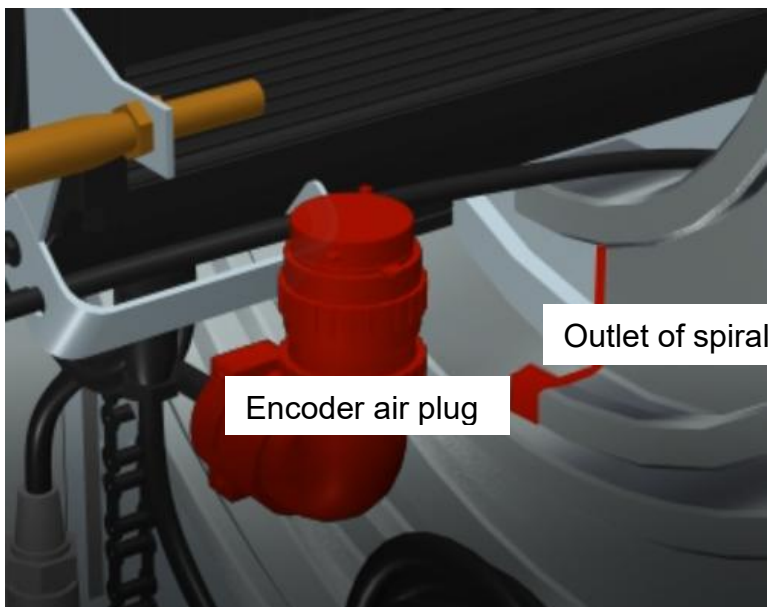


### 6.2 FIX THE MOTOR AND INSTALL THE MOTOR CHAIN



Adjust the chain tightness with screw rod, press the chain with two fingers, and float around 15~20mm in total. Not too loose, easy to get out of gear! Not too tight, the chain will be easy to break!





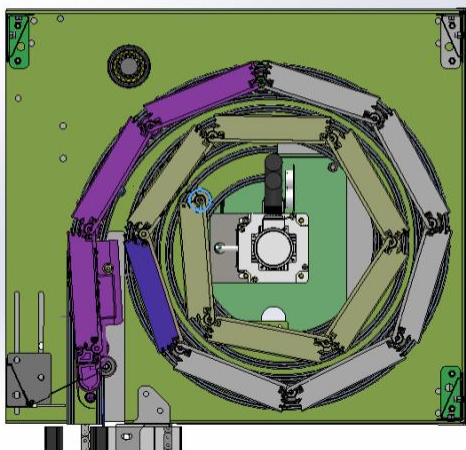
Note: The encode air plug of the motor must be aligned with the outlet of the inner track of the spiral, otherwise the encoder plug will be hit off by the door panel.



The fixing method of motors with aviation plugs for different spiral sizes is shown below:

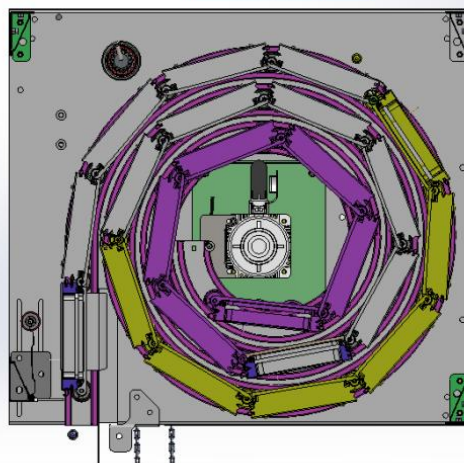
3.5m Spiral  
15pcs of door lathes

3.5m 涡轮  
15 块门板



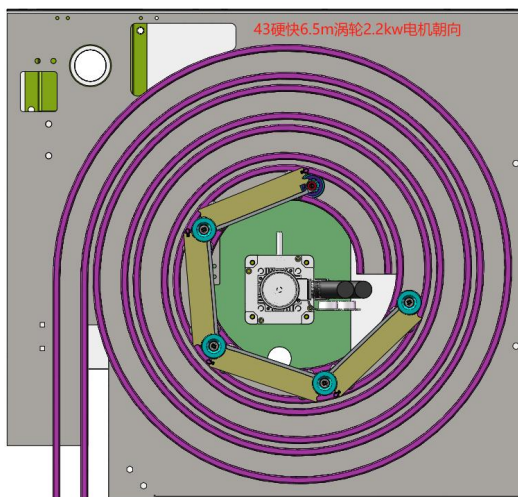
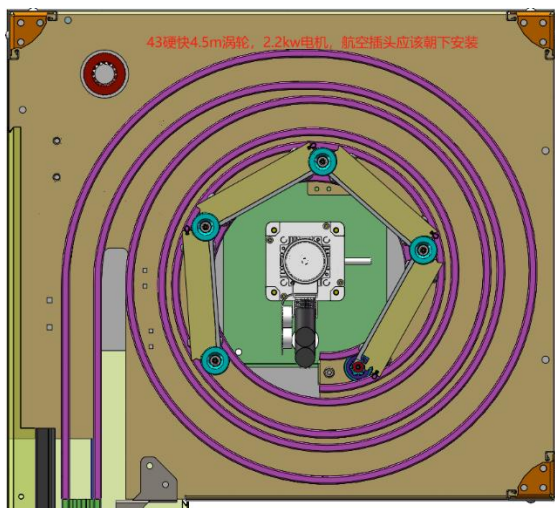
5.0m Spiral  
23pcs of door lathes

5.0m 涡轮  
23 块门板



4.5m Spiral 2.2kW

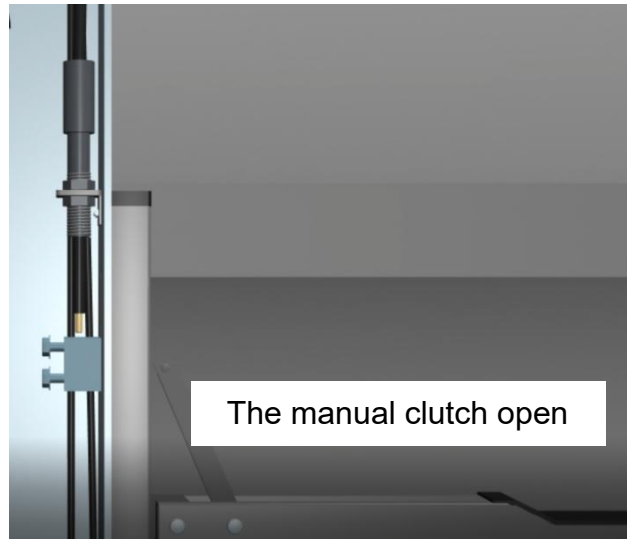
6.5m Spiral 2.2kW



### 6.3 INSTALL THE CLUTCH HANDLE

Threading must be done with the manual clutch open.





Trial operation and adjust properly. Note: when the door powered on, it is forbidden to open the manual clutch, otherwise the manual clutch or motor might be damaged seriously.

## 6.4 INSTALL THE CONTROLLER

Wiring and mounting



### Note

If the motor line and encoder line are too long and cannot be coiled in the control box, put the excess line in the turbine box and bind it with binding tape

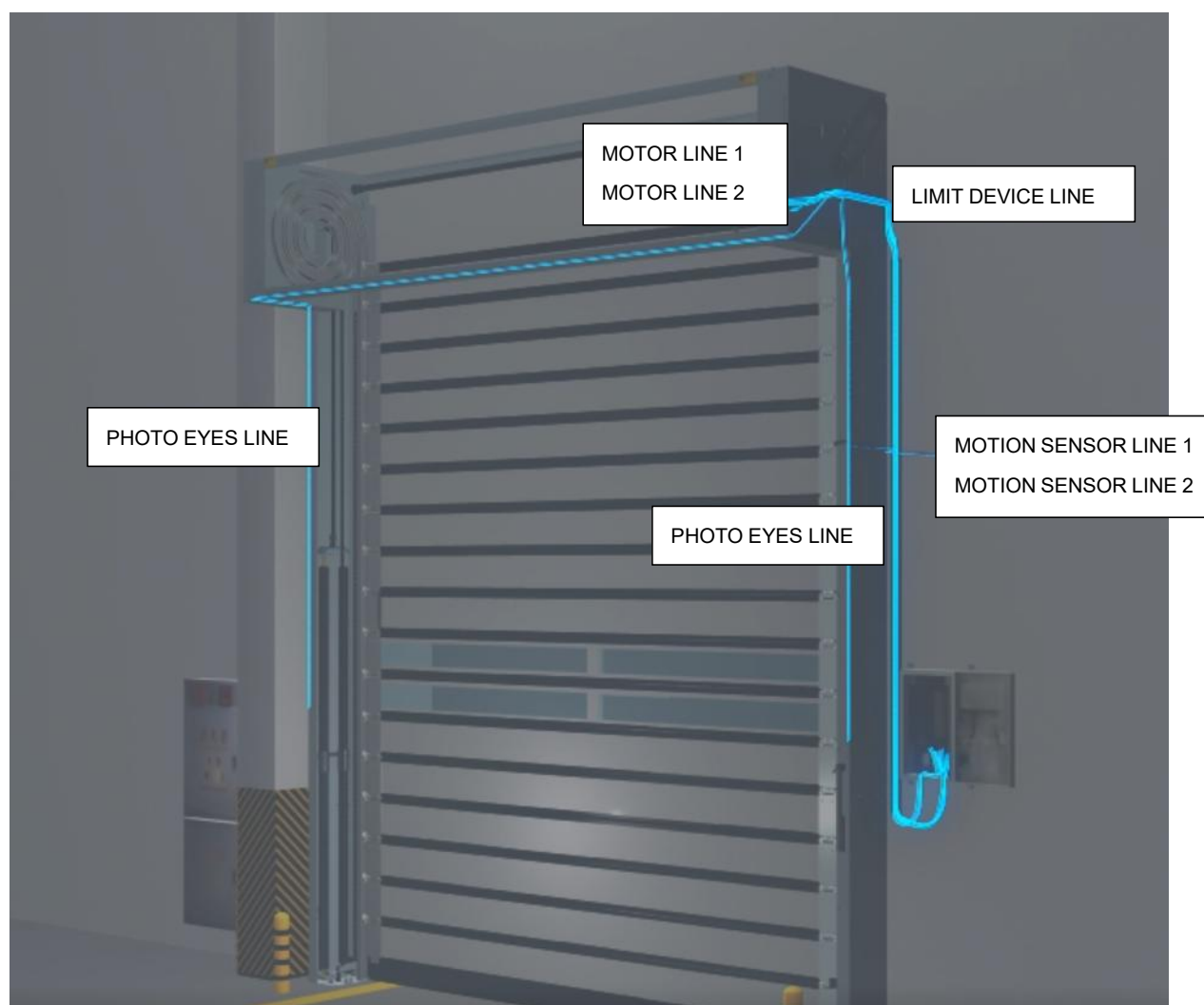
## 6.5 INSTALL SAFETY WIRELESS AIRBAG

### Note

Please note that the last four digit code of the airbag transmitting end on the bottom aluminum profile (pasted on the door panel connecting plate when leaving the factory) is consistent with the last four digit code of the receiving end in the control box, otherwise, it needs to be re coded.

## 6.6 INSTALL MOTION SENSOR, MAGNETIC LOOP AND OTHER OPTIONS

If the motor/encoder line is redundant, place it in the spiral tank.



### Note

The hole part of the motor fixing plate faces down to tighten the motor and prevent the chain from loosening.

## **6.7 POWER ON AND DEBUG RUNNING**

## **6.8 INSPECTION ITEMS**

6.8.1 Check whether the belt is running in the middle of the shaft during the door open and close. If not, check whether the initial loop is set properly, or contact the representative directly.

6.8.2 There are two white nylon wheels located on either side of the door panel. Check the gap between the white nylon wheel and the aluminum alloy track during the door operation. Normally, the gap of the two sides should be even, neither the gap is large nor the nylon wheel pressed tightly. Otherwise, the installation accuracy needs to be adjusted to ensure the gap consistent.

6.8.3 Check whether the upper spring hanging plate collides with the column during operation.

6.8.4 Check whether the door has abnormal noise. To judge whether the installation of the door is correct through the noise.

## **CHAPTER 7 - OTHERS**

### **7.1 SERVICE SYSTEM**

7.1.1 Unless otherwise specified when signing the contract, our products are guaranteed for one year free from the date of customer acceptance.

7.1.2 After the warranty period expires, a maintenance contract can be signed according to the customer's requirements.

### **7.2 AFTER SALES SERVICE**

#### **7.2.1 User profile and return visit**

After the products are delivered to customers for use, our company establishes corresponding product user files, adopts the methods of regular return visit and irregular sampling visit, timely understands and grasps the product quality trends, and collects customers' suggestions and opinions.

#### **7.2.2 Service hotline: 0532-86918120**

If you have any questions during the use of the product, please call our after-sales service hotline in time, and we will reply and solve them at the first time