

Catalogue

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1 Basic Information

1.1 Purpose of the manual

This manual is intended to train professional users and operators. With the help of this manual, you will be familiar with the pallet wrapping machine and its optional features, enabling you to use, operate, manage and maintain the machine in a safe and effective manner.

Notice to users:

- The user must operate the machine in accordance with all safety instructions and procedures in this manual and all safety procedures in the work area;
 - Ensure that the machine is properly installed, commissioned, operated, and maintained, and that only adequate and properly trained personnel can perform these operations;
- Ensure that the machine is used in full compliance with the laws and regulations, which have legal effect.

1.2 This user manual

This manual is part of the equipment and this information will help the machine operate safely and efficiently.



Note

Read this manual thoroughly before operating the machine or performing any procedures

1.2.1 Source content

The source language of this manual is Chinese. The source Chinese text will be legally binding to prevent any differences between the translated text and the source text. **The author of this manual is Smart Wasp Intelligent Technology (Suzhou) Co., Ltd., hereinafter referred to as Smart Wasp.**



Note

As we continue to improve and develop our products, it is not always possible to provide true pictures of every detail of the machine. Therefore, the illustrations always show a typical standard machine.

1.2.1.2.2 Supplemental and other information

This manual has been carefully crafted based on our experience and the latest knowledge. Therefore, the information in this manual was valid and correct at the time of publication.

As we continue to improve and develop our products, modifications to the machine are part of internal procedures and you may receive supplemental and other information at a later date, including corrections or improvements.



Note

Incorporate these supplements into this manual to ensure that customers always have the latest version of the manual.

1.3 Agreement

This user manual uses the following conventions

1.3.1 Warning

This user manual uses the following warnings:



Warning

Identifies dangers that could lead to personal injury or even death.



Cautious

Identifies hazards that may cause machine failure or damage.

Note

Used to highlight additional information.

1.3.2 Printing and creation agreement

- Between bulleted lists and enums, always with bullets
- The steps must be performed in a prescribed sequence that is always numbered throughout the process.

1.4 Environmental protection

Please observe the disposal of used or replaced parts and materials in the tasks described in this document, and all recycling and disposal must comply with local environmental laws and regulations.

1.5 Machine identification

| | | | |
|--|-------------------------------------|--|--------------------------|
| SMART WASP | | Serial No.: | |
| Smart Wasp Intelligent Technology Co.,LTD | | | |
| Name | Model | Version | Date |
| <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |
| Voltage | Phase | HZ | Machine Size |
| <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |
| Total Power | Max Load | Weight | Control Model |
| <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |
| (PSI T BAR) | | Air Requirment (CFM I /min) | |
| <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |
| <input type="text"/> | KA | SCCR | Max V |
| <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="text"/> |
| Original | | | |
| Shanghai | <input type="checkbox"/> | Shenzhen | <input type="checkbox"/> |
| Suzhou | <input checked="" type="checkbox"/> | Beijing | <input type="checkbox"/> |
| Hot Line 400 6040 919 | | | |
|  | |  | |
| View More | | | |
| http://www.smartwasp.com | | | |

1.6 Additional help and information

Wasp is committed to providing the highest level of support for its users and operators. Depending on the product, the support provided mainly includes:

- Training
- Service Management System
- 24-hour global support
- Maintenance agreement
- Tool Services
- Repair and renovation

If you need more help, please contact Wasp for more help

2 Safety instructions

2.1 Standards and directives

The machine is designed and manufactured in accordance with the requirements of the Machinery Directive **2006/42 / EC** and the legal requirements applicable at the date of construction:

- Machinery Directive:**2006/42/EC**
- Low Voltage Directive:**2014/35/ EU**
- EMC Directive:**2014/30/EU**

The machine is designed with safety in mind and includes features that help prevent injury and damage. However, all powerful machines can be dangerous if not used properly.

2.2 Safety regulations

2.2.1 General safety instructions

- The tasks described in this manual are only for personnel who are appropriately trained, have the required skill level (see section 2.3), and are familiar with all safety instructions and regulations mentioned in this manual.

- We do not accept any liability for any damage or personal injury caused by failure to follow the safety instructions in this document or the warnings, cautions, and cautions described in this manual.

- Depending on the specific working conditions in your work area, additional safety instructions may apply. Since we cannot directly control these specific working conditions, it is the responsibility of the user to ensure compliance with local environmental and safety regulations. If you handle an unsafe situation that is not described, please notify us immediately.

The machine may also contain third-party components. For specific safety instructions for these third-party components, consult the appropriate manual.

- Ensure that children and other unauthorized persons cannot enter the work area.

- Make sure there is sufficient light and ventilation in the work area.

- Dress correctly. Do not wear loose clothing. Remove jewelry, watches, etc. to prevent them from getting caught in moving parts.**People with long hair should wear safety helmets.**

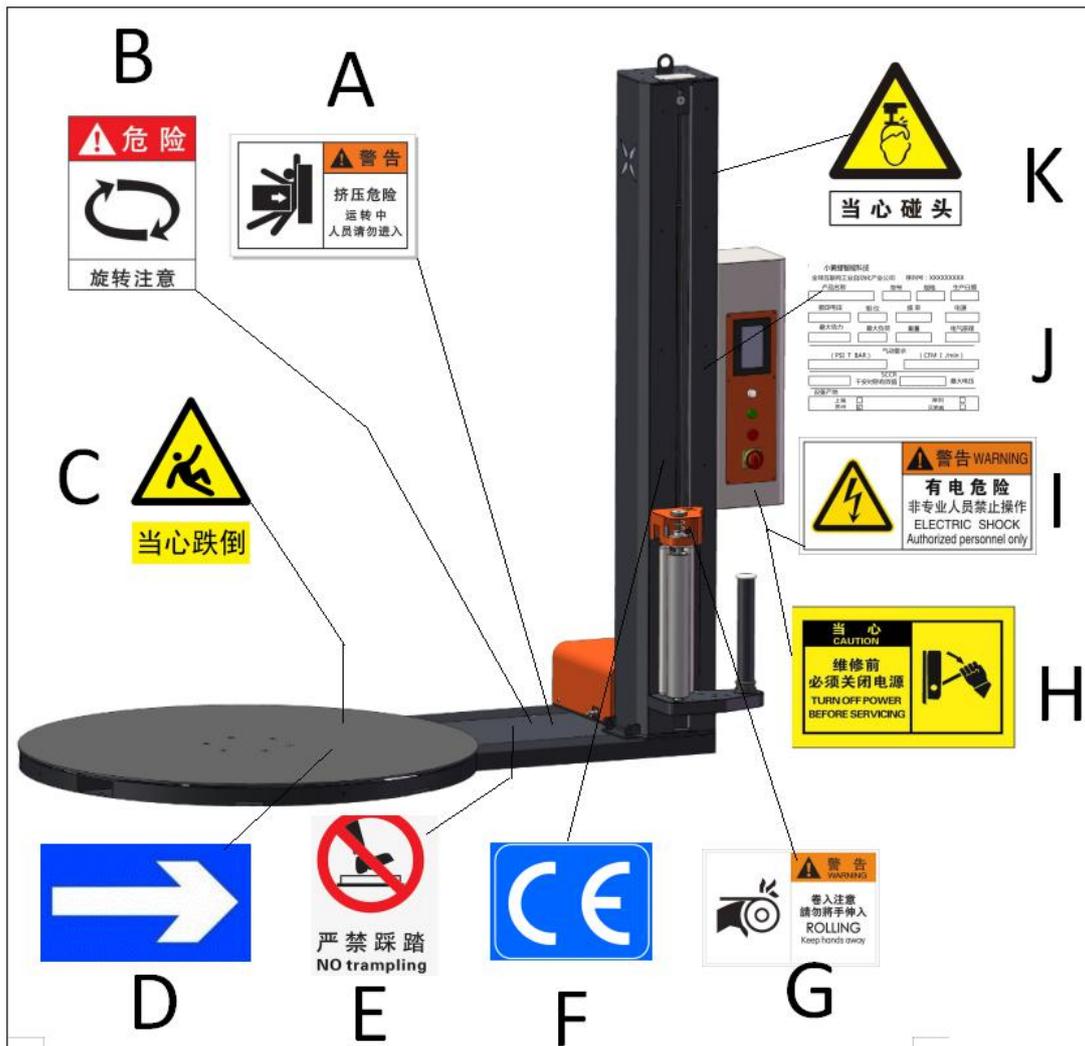
- Please wear personal protective equipment (eg protective clothing, protective shoes, gloves, hard hat, goggles, ear muffs) according to the user's use environment.
- Before performing any tasks on the machine, check that the machine is safe and **that there are no obstacles around the device.**
- Always be vigilant and pay attention to your actions. Do not work on the machine when you are tired or drinking or taking medicine.
- Do not modify the structure of the machine. See section 2.2.5.
- Unless authorized, do not open the power distribution cabinet.
- Unless authorized, do not bridge, temporarily cancel or disable the machine's security features.

2.2.2 Instruction manual use

- Keep this instruction manual in a safe place near the machine. Ensure that the manual is always accessible.
- Please read this instruction manual thoroughly before using the machine or performing any of the tasks described. Make sure you always have the latest version of this instruction manual.
- **When reading the manual, read it in order to ensure that you can fully understand the contents of the operation manual.**

2.2.3 Decals and instructions on the machine

- The decals or instructions installed on the machine are part of the security features provided. They must not be covered or removed, and they must be clearly visible throughout the life of the machine.
- Damaged or illegible decals and instructions must be replaced immediately.



A Warning: danger of crushing, do not enter during operation

B Warning: Be careful when the machine is rotating

C Danger: Beware of Falling

D Warning: Turntable rotation direction

E Warning: Do not step on

F Indication: CE mark

G Warning: Do not reach into the film roll

H Warning: Non-professionals are forbidden to operate the electrical cabinet, there is a danger of electricity

I Warning: Power must be turned off before servicing

J Instruction: Machine identification plate

K Warning: be careful

2.2.4 Modify



Warning

Do not attempt to make any modifications or alterations to the machine without the prior express consent of the smart wasp. Unauthorized modification or alteration of the machine can cause serious personal injury or even death

Smart Wasp are always willing to turntable use the issue of improving the value of the machine for users by modification or change. See section 1.6

2.2.5 Guarantee

- The machine has a 12-month warranty after installation, excluding components and electrical components that would wear out during normal use. The customer must notify the smart wasp of the defect and the machine serial number.
- Smart Wasp is not responsible for accidents or delays in production. When the customer adjusts the machine with components that are not recommended by the smart wasp, the smart wasp cannot guarantee that the machine meets EC requirements

2.2.6 Security-transport



Note

Usually the machine is transported by the wasp or with the help of the instructions provided by the wasp. When moving the machine, please observe the safety instructions provided in Chapter

2.2.7 Security-install



Note

Usually the machine is installed, adjusted and commissioned by the manufacturer's professional, or with the help of the manufacturer's instructions. When moving the machine, please follow the safety instructions provided in Chapter 5.

2.2.8 Safety-operation

- Please observe the general safety instructions. See section 2.2.1.
- Make sure that the machine and its surroundings are kept dry.
- Keep away from moving parts.

Do not stand on the turntable even if the machine is turned off.

- Do not touch the area between the turntable and the floor of the machine (danger of

crushing your fingers).

•When the machine is running:

- Do not touch the pallet
- Keep away from the area between the pallet (may be caught by the film roll and pallet).
- Do not try to stop or drag the pallet manually, use the emergency stop button
- Always wear personal protective equipment specified or recommended by the user.
- During operation, the film carriage moves up and down. Keep away from the Film carriage pallet carriage (risk of crushing fingers-risk of foot injuries).

2.2.9 Security-maintenance

- Please observe the general safety instructions. See section 2.2.1.
- Before starting any maintenance (or even cleaning):
 - Set the main switch to the "OFF" position (0).
 - turntable connect the power plug from the power outlet.
 - Wait for at least two minutes.
- Do not clean the machine with water (danger of electric shock)
- Do not use solvents to **clean** the machine. Use only a dry cloth and mild detergent to clean the machine.
- If the safety function is bridged or (temporarily) disabled, the safety function is reactivated or enabled immediately after maintenance work is completed. Before cleaning the machine for production, be sure to check the normal functioning of the safety functions.
- Do not leave anything inside or on the machine.
- The detection range of the sensor has been set by the manufacturer. Do not change this setting.

2.2.10 Safety-repair

- Please observe the general safety instructions. See section 2.2.1.
- Before starting maintenance work:
 - Set the main switch to the "OFF" position (0).
 - turntable connect the power plug from the power outlet.
 - Wait for at least two minutes.
- If the safety function is bridged or temporarily disabled, the safety function is reactivated or enabled immediately after the repair work is completed. Before cleaning the machine for production, be sure to check the normal functioning of the safety functions.

- Do not leave anything inside or on the machine.

2.3 Operational Skills

2.3.1 operator

- Only permitted operators should work on the machine.
- All operators can only perform their trained and executable operations.
- All operators who use or work on the machine must be familiar with the operating instructions.
- Operators must be familiar with everything that can happen so that they can act quickly and efficiently in emergency situations.
- This machine is only suitable for persons over 16 years of age. The corresponding national occupational safety and health regulations must be observed.

2.3.2 Operator skills

Operators are trained to:

- Loading and unloading pallets.
- Use the controls on the control panel to control the machine.
- Parcel pallet.
- Ready to load and unload the film roll.



Note

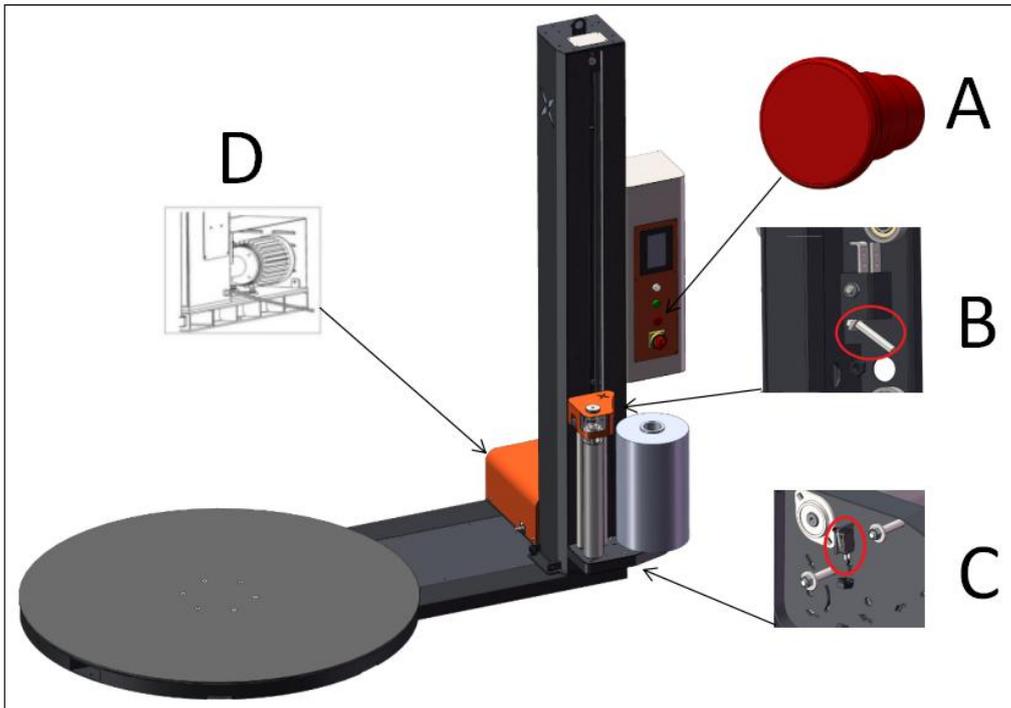
It is the responsibility of the user to ensure that machine operators are adequately trained in their operational tasks before commencing work.

2.4 Safety features

2.4.1 Overview of safety functions

The turntable packaging machine has the following safety functions:

- Emergency stop button (see section 2.4.2)
- Security stickers and instructions (see section 2.2.3)
- Film carriage anti-fall protection switch (see section 2.4.3)
- Ground wire (see section 2.4.4)
- Anti-fall lock (see section 2.4.5)



- A emergency stop button
- B Anti-fall lock
- C Anti-fall protection switch
- D Ground wire

2.4.2 emergency stop button

Emergency stop button is located on the control panel



Note

In an emergency, press the emergency stop button. The emergency stop button can be released by turning the emergency stop button clockwise

2.4.3 Film carriage anti-fall protection switch

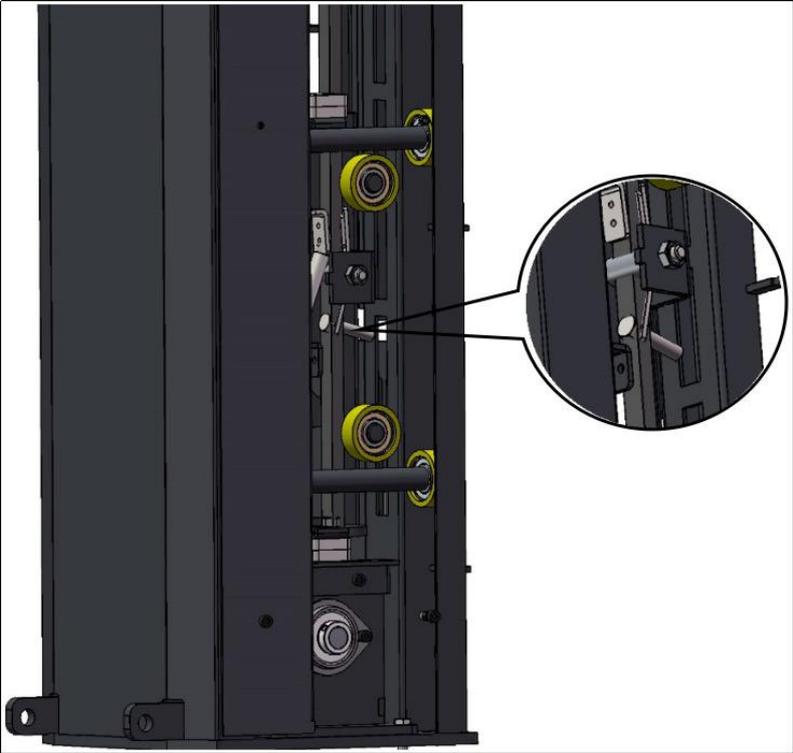
The film carriage anti-fall protection switch is located under the film carriage. Once the lower cover touches the protection switch, the machine will stop

2.4.4 Ground wire

The electrical system is grounded. For the ground wire, the continuity test was performed after the smart wasp was commissioned. When leaving the factory, insulation tests and insulation strength tests are performed on electrical systems.

2.4.5 Anti-fall lock

When the chain breaks accidentally, the anti-fall protection system can effectively stop the Film carriage effectively to prevent falling.



2.4 Major operational risk safety warnings

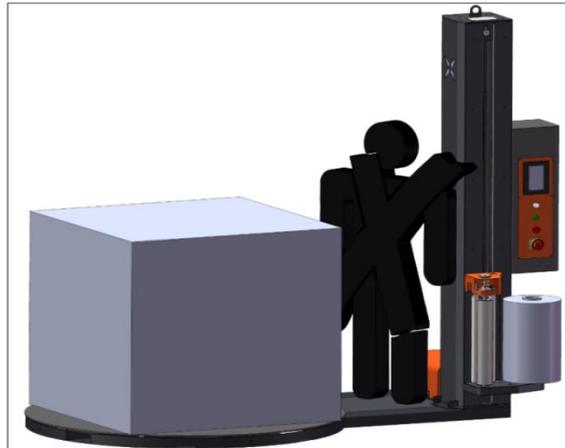
Operators must pay attention to the following safety warnings during the normal operation of the equipment:

- Danger of body collision and carryover:
Do not touch the machine parts while the machine is running



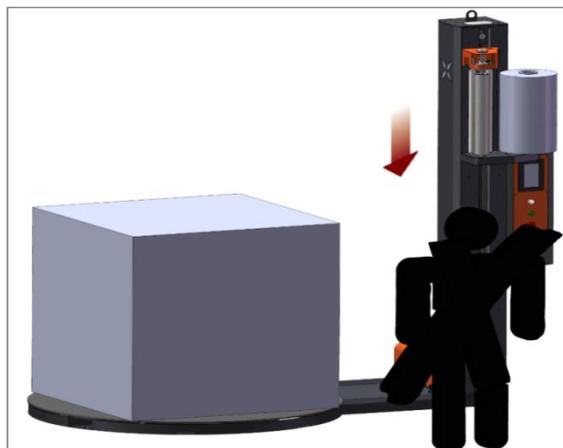
•No stay:

Do not stay in the operating area of the machine



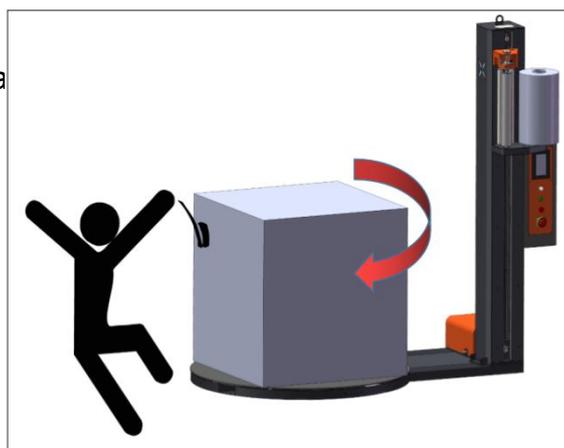
•Film carriage collision hazard:

Do not stand under the Film carriage



•Danger of collision during start up:

Do not stand turntable items when starting
Nearby to avoid danger



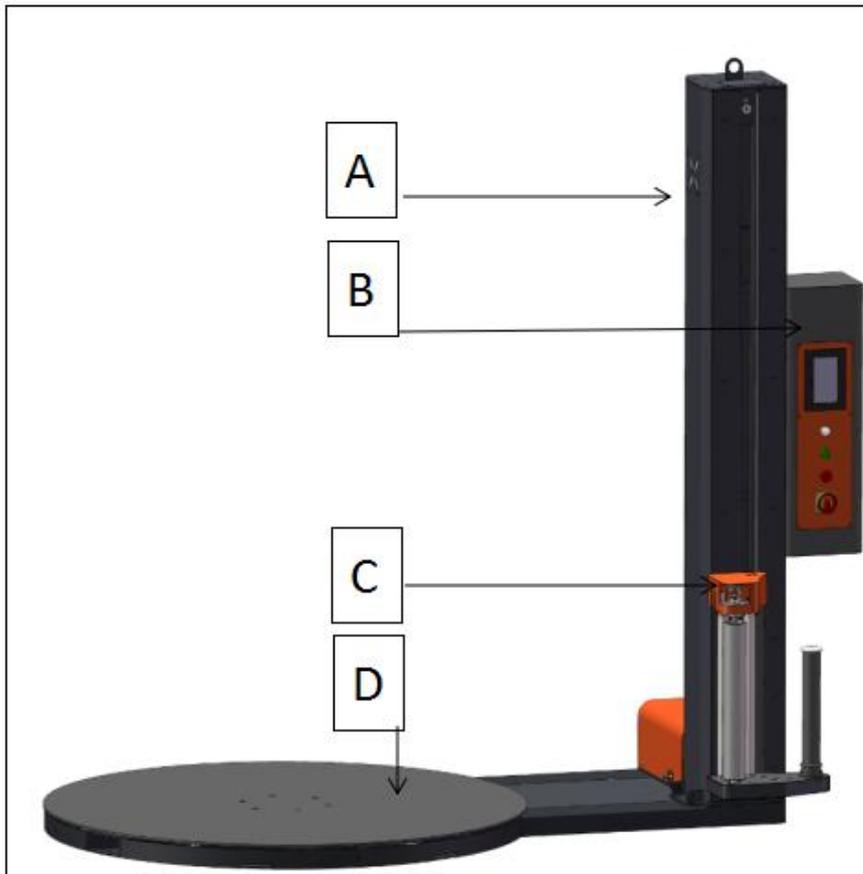
·Other dangers during start up:
When moving goods at start up
Forklift away from machine cargo



3 Technical parameter description

3.1Composition of main components

X0 standard pallet wrapping machine uses special film to pack pallet goods. The wrapping film can be evenly attached to the pallet goods in the pre-stretch mode. Its main components are shown in the figure below.



A Column

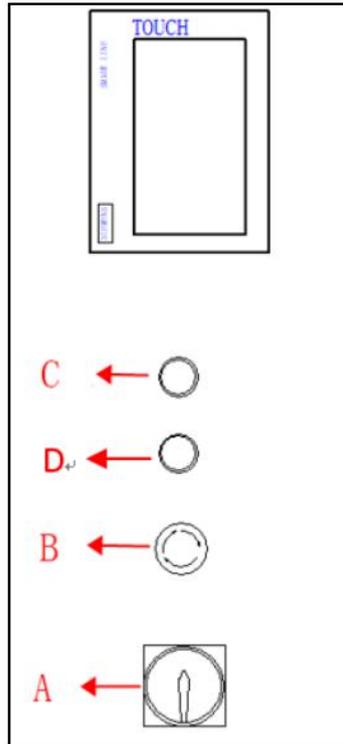
B Electric control box

C Film carriage

D Turntable

3.2 Control Panel

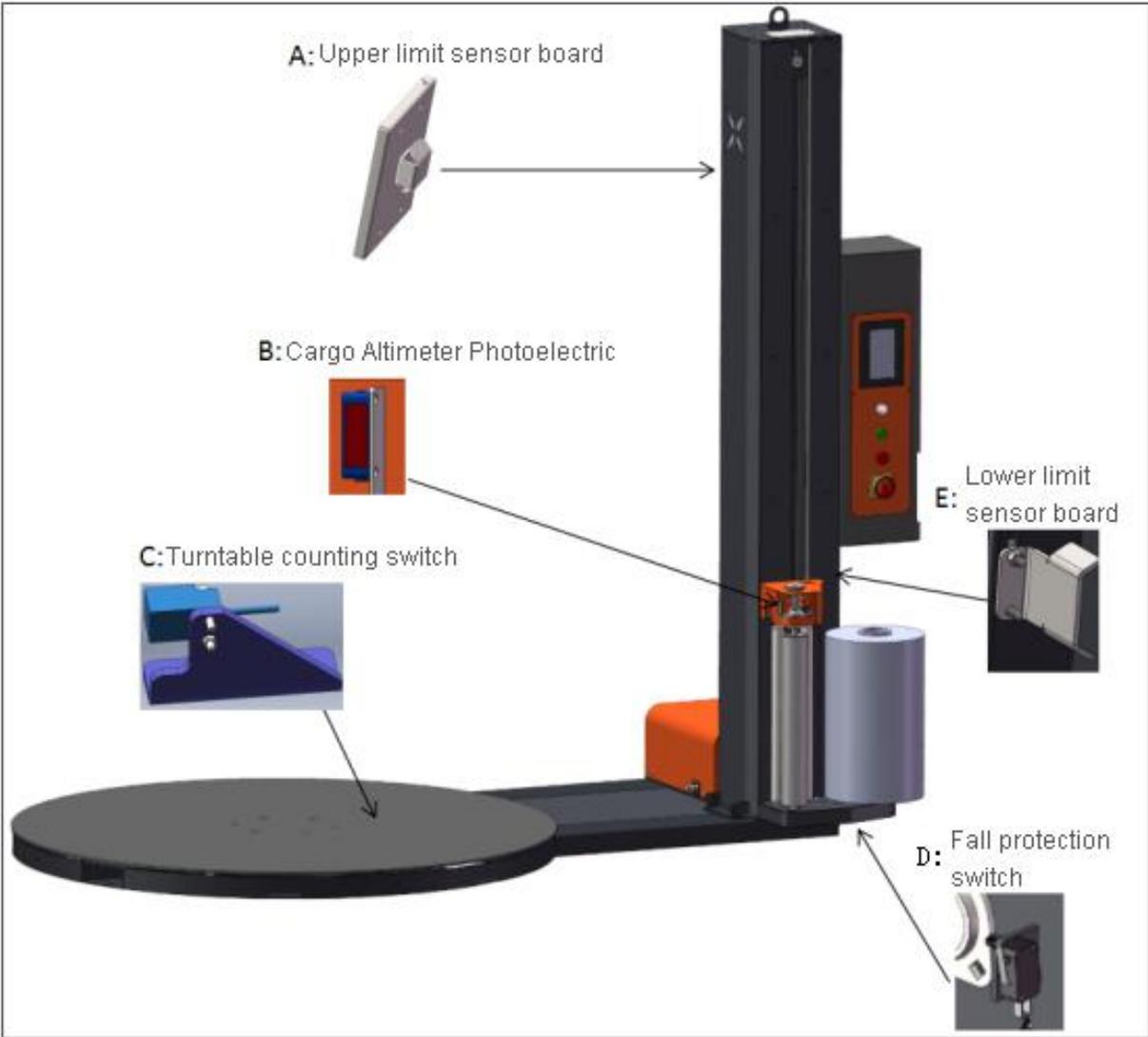
3.2.1 Main control pane



| Number | Description | Features |
|--------|-----------------------|--|
| TOUCH | Touch screen | The touch screen is used to operate the equipment and set the operating parameters. Refer to Section 5.7 |
| A | Main power switch | Turn the main switch clockwise to power on the device; turn the main switch counterclockwise to the power port on the device. |
| B | Emergency stop switch | Press the emergency stop switch, the device will immediately stop running under any state; turn the button clockwise to release the emergency stop switch. |
| C | Power Indicator | When the main power switch is turned on, the power indicator is on. |
| D | start up button | Operate the start button and the device starts to run automatically |

3.2.2 Sensor location

The icon below shows the information of the sensor position of the device and the access system, which is convenient for maintenance.



3.3 Working Principle

The operation of the X0 standard wrapping machine can be completed by an operator. Its basic working principle is as follows:

1. The goods are transported to a standard wrapping machine by a forklift, the film roll is loaded and the film head is manually attached to the surface of the goods

(see 5 operating instructions for details);

2. Start the wrapping machine, and the goods will start to rotate from the initial position (origin) with the turntable. At the same time, the film carriage at the bottom cooperates with the Turntable to release the film, and the film is wrapped on the goods under the rotation of the Turntable
3. According to the packaging requirements of different goods, the film starts to rise after wrapping a certain number of turns at the bottom of the goods, and the overall movement of the goods is realized by the combination of the rising motion of the film carriage, the rotation of the Turntable and the film exit motion of the film carriage;
4. When the film runs to the top of the cargo, it starts to descend after completing the top wrapping under the action of the photoelectric sensor;
5. When the film carriage runs to the bottom, the turntable starts to decelerate, and stops after completing the number of turns at the bottom to complete the wrapping;
6. After the film breaking is completed, a packing cycle ends, and the machine is in a standby state, waiting for the next packing of the goods.

3.4 Optional

3.4.1 Pit configuration

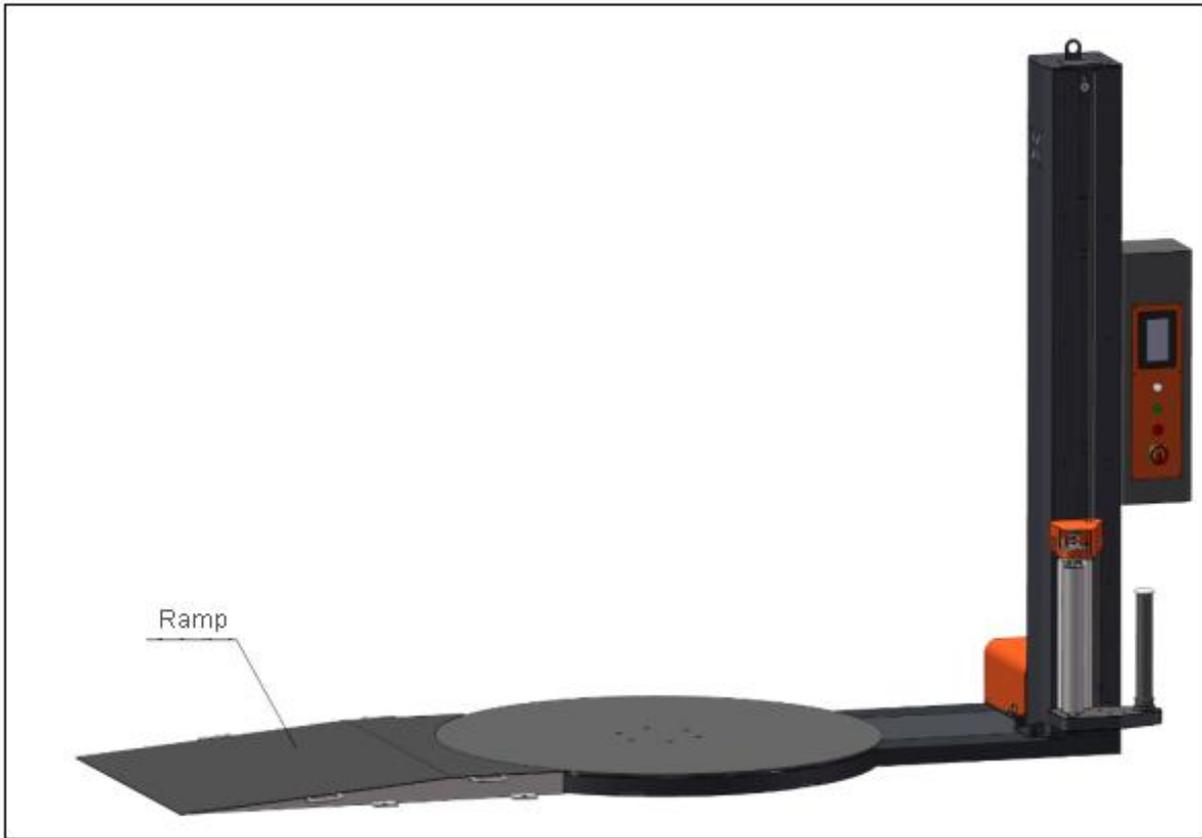


Note

According to the site conditions of different users, the working surface of the equipment is parallel to the working surface of the Turntable, and the pit is optional to facilitate the use requirements of specific customers.

3.4.2 Ramp configuration

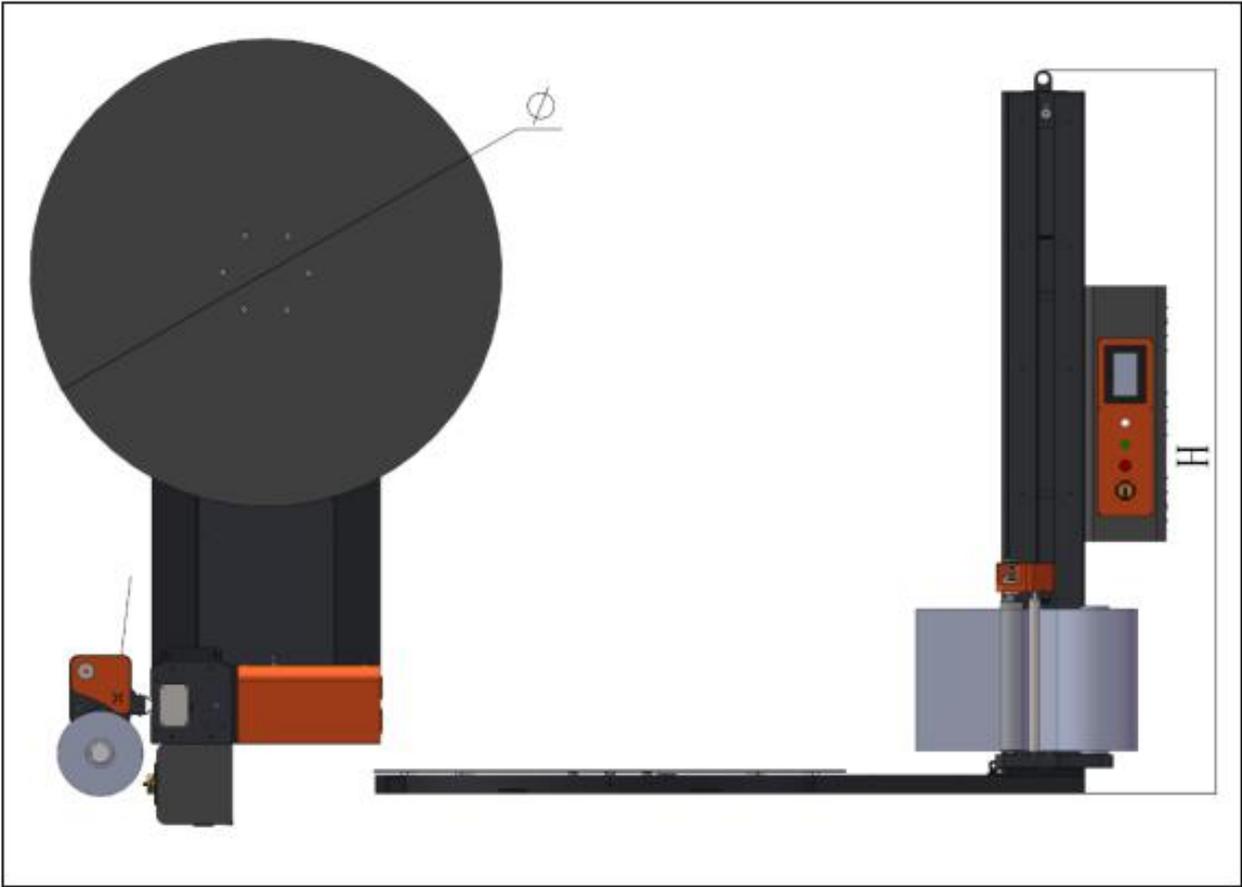
The ramp is available as an option for specific customer requirements.



Ramp

3.5 Technical Parameters And Main Configuration

3.5.1 Institutional parameters



| | | | |
|------------------|------------------|----------------------------|-----------|
| Model | X0 | Machine size | See above |
| Brand | Smart wasp | Film roll thickness | 14mic |
| Film roll width | 500 mm | Film roll diameter | 250mm |
| Film exit method | Power pretension | Standard pre-stretch ratio | 200% |
| Packaging speed | 30 Torr / hour | Intelligent AV sensor | standard |
| Packaging height | 2000mm | Packing weight | 1500Kg |

| | | | |
|-----------------|----------------------|-----------------------------|---------------------------|
| Turntable speed | 0-12RPM (adjustable) | Film carriage lifting speed | 0-5.5m / min (adjustable) |
| Turntable size | Optional | Automatic film cutting | no |
| Machine weight | 620Kg | Filming method | Manual |

The existing diameters (Φ) of the turntable of the X0 series wrapping machine are 1500mm, 1650mm, and 1800mm. When the column is 2400mm, H is 2550mm. The following table shows the existing column and package height configuration:

| Column height (mm) | Wrapping height (mm) | Total height (H: mm) |
|--------------------|----------------------|----------------------|
| 2400 | 2000 | 2550 |
| 2800 | 2400 | 2950 |
| 3200 | 2800 | 3350 |

3.5.2 Electrical parameters

| | | | |
|-----------------|------------------------------------|-------------------|---------------------|
| Machine voltage | 220V-240V / 50 / 60Hz single phase | Switchboard power | 1.5Kw |
| PLC | SMARTWASP | HMI | Siemens (SMARTWASP) |
| Motor | SMARTWASP | Inverter | SMARTWASP(X-LINE) |
| Contactors | Siemens | sensory switch | Germany SICK |

3.5.3 Working environment parameters

| | | | |
|-------------------|----------|-----------------------|--------------------------|
| temperature range | 0°~ +40° | Humidity range | ≤70% (relative humidity) |
| noise | 75dB | Pneumatic environment | no |

4 Transportation And Installation Instructions

4.1 Transportation safety



Note

1、 Please note that for the transport of the machine, follow the general safety practices and the safety instructions given in this section.

2、 Packaging materials consist of plastic film, plywood, etc. (please follow the relevant recommendations or regulations for the disposal and recycling of local packaging materials)

3、 Pay attention to waterproof and severe vibration during transportation.

4.2 On-site transportation

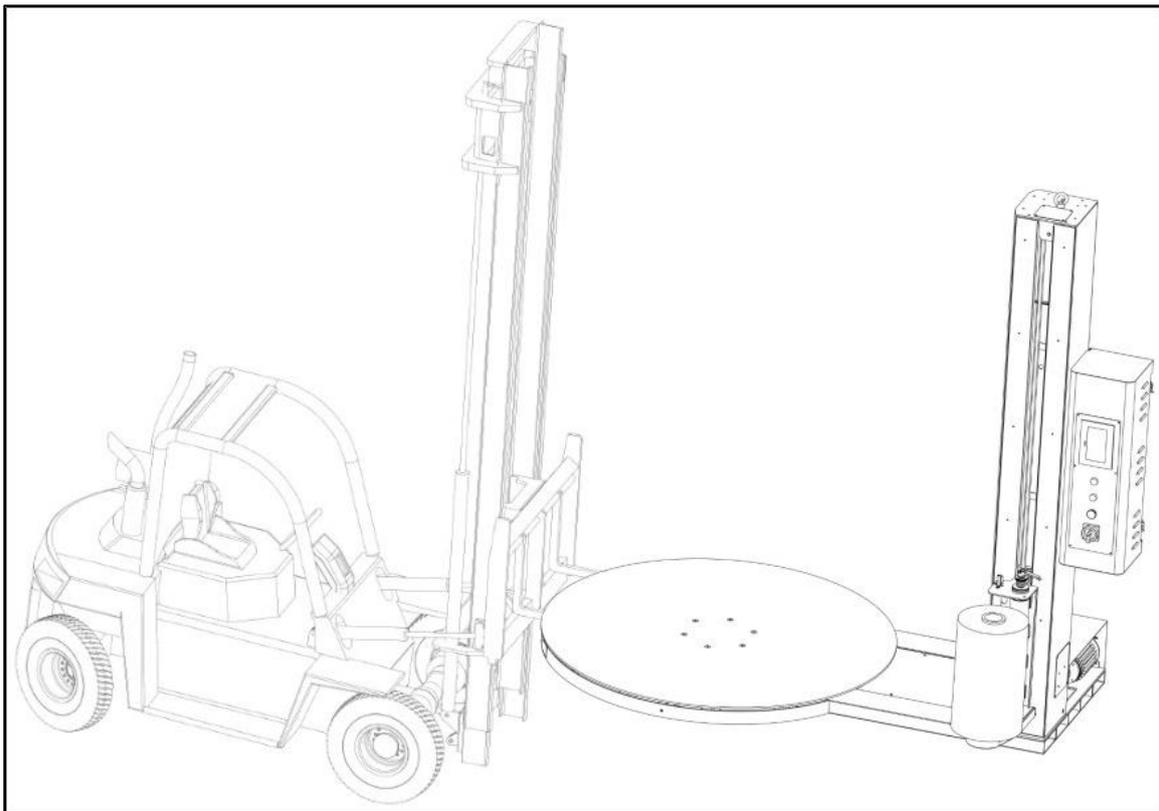


Note:

No need to disassemble the machine, the machine can be moved as a whole

- 1、 1、 Turn on the power and move the film carriage up a distance (see 5 operating instructions for details)
 - a. Turn the main switch clockwise to turn on the machine
 - b. Click the touch screen to enter the password to enter the host interface
 - c. Select manual mode
 - d. Click the film carriage to rise, stop after rising to a suitable height
- 2、 Turn the main power switch counterclockwise to turn off the machine
- 3、 Press the emergency stop button
- 4、 Remove the power plug from the power outlet

- 5、 Insert the fork teeth of the forklift into the bottom of the machine and raise the machine by about 50mm
- 6、 Move to a new location





Cautious

During transportation, pay attention to the obstacles on the top of the machine and the obstacles on the floor, such as the sink.

4.3 Temporary storage

If the machine must be temporarily stored, follow these steps

1. Protect the machine from dust
2. Store the machine in a clean, dry place. The environmental conditions required for installation also apply to storage.
3. Do not place anything on top of the machine.

4.4 Preparation before installation

Please read the entire installation section before you begin, and then follow the instructions step by step.



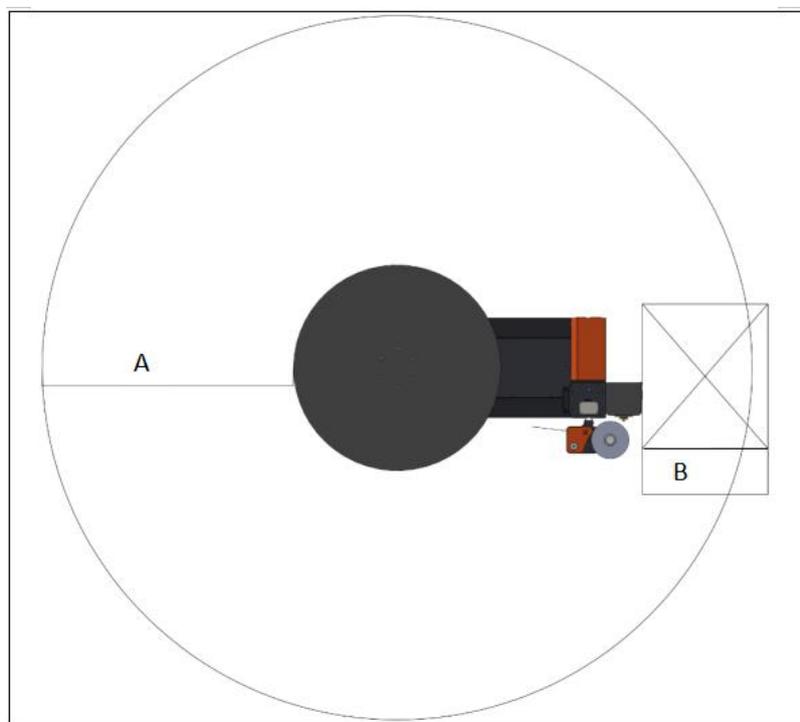
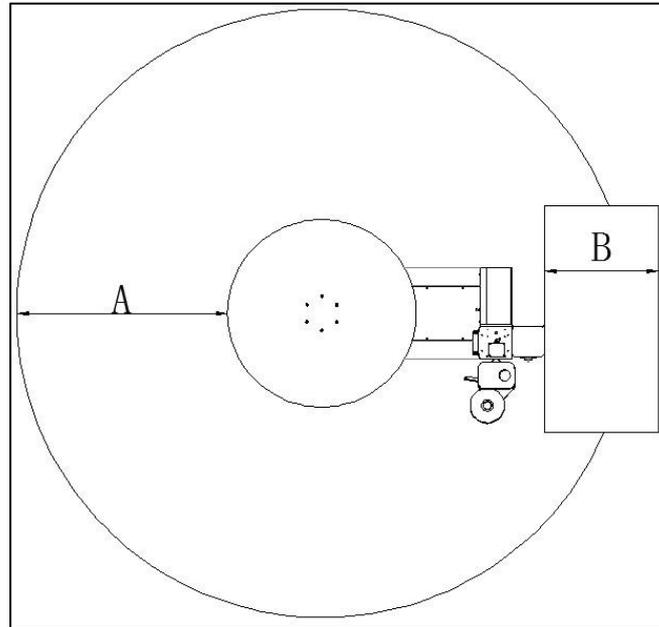
Cautious

- (1) Complete each step before moving on to the next step!
- (2) The device has multiple safety protection measures. When operated

in the correct way, it can ensure safe operation. Please observe all safety signs. Do not turn on the power until the installation is complete.

4.4.1 Area preparation

The installation area of this equipment must meet the following space requirements:



A 2000mm

B 1000mm

- Leave some space around the machine for daily operation, maintenance and repair
- In order to achieve the best operating condition of the machine, place the machine on a flat surface, if necessary, level the machine with a gasket.

4.4.2 Ground confirmation

The ground must be able to support the weight of the equipment, its maximum load and its impact, which requires:

Ground bearing capacity \geq (total weight of equipment + weight of goods) \times 1.5.

4.4.3 Electrical confirmation

System requires a dedicated single-phase grounded power supply:

220V/AC; 10A; 50/60Hz; 1PH



Note

For specific electrical requirements, see the equipment identification label or electrical drawing.

Cautious



(1) Use of extension cords and any other changes may cause damage to the circuit or affect the performance of the equipment, and may void the warranty. If you need to change, please call after-sales service.

(2) To avoid damage to the equipment, check the voltage in the electrical drawings before starting the equipment.

4.4.4 Equipment, tools and personnel requirements:

- Standard wrapping machine
- One set of tools (in the random toolbox), one forklift
- 1-2 mechanical / electrical technicians, 1 user

4.4.5 Equipment handling and handling

(1) Loading and unloading of the main body (Turntable and three-dimensional part lying on it):

Equipment for main body loading and unloading: forklift.

Operation method: remove it through the forklift action port and transport it to the installation place to straighten it.

(2) Other parts:

Before moving the loading and unloading main body, other parts must be manually moved.

4.4.6 General hardware tightening torque reference

The torque and performance specifications of the fasteners provided and recommended for this product are shown in Table .

| Metric fastener torque comparison table | | |
|---|-------------------|-------------|
| Nominal size of fastener | Performance level | Torque (Nm) |
| M6 | 8.8 | 14 |
| M8 | 8.8 | 24 |
| M10 | 8.8 | 54 |
| M12 | 10.9 | 102 |

4.4.7 Installation conditions

Humidity≤70% Temperature 0-40 °C

4.5 Device installation

4.5.1 Equipment installation preparation

- (1) Use a forklift to move the equipment to the installation area, remove the outer packaging, strapping materials and items used to fix the equipment;
- (2) Take out the random tools, check whether the equipment is complete, and arrange them neatly;

4.5.2 Post installation

- (1) Stand tower, pay attention to safety during operation

Before installation, the pillars are placed on the surface of the Turntable with

a wrapping film or other soft material, and the pillars are erected. During the erection process, avoid collision and impact between the pillars and the Turntable to prevent damage to the parts. Make sure that the center screw of the rotation is loose before erecting, and ensure that the column rotates smoothly when erecting. After standing tower, lock the post on the Turntable, and then tighten the rotation center screw. Note: If the equipment is transported long distances, or if it is sent overseas, the column and base are packed and shipped separately.

- (2) Use a random tool to install and fix the column on the Turntable (see the column installation diagram below for details).

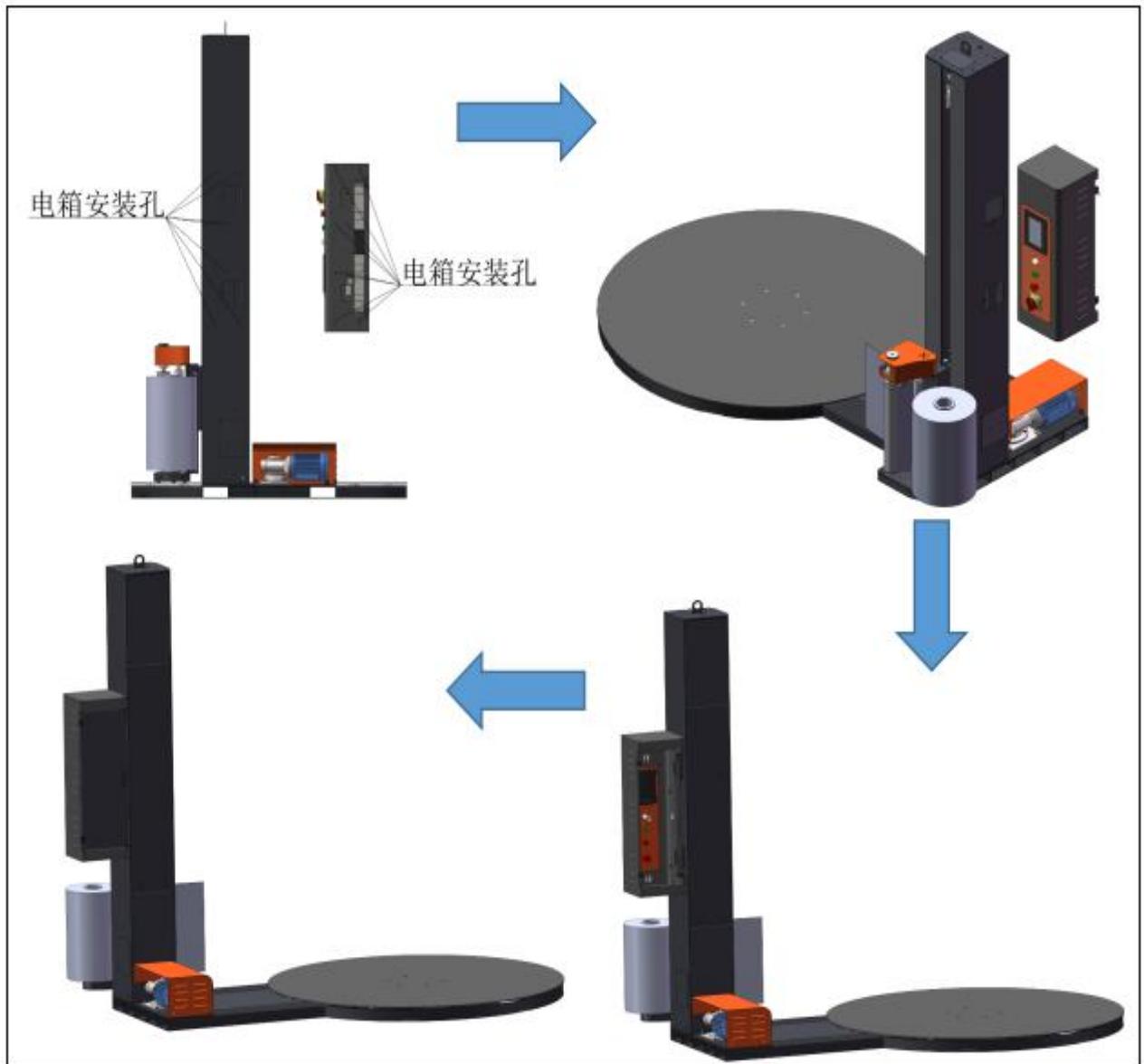


(3) Connect the Turntable motor and the sensor quick-connect aviation plug, and the connection is as shown in the figure below.



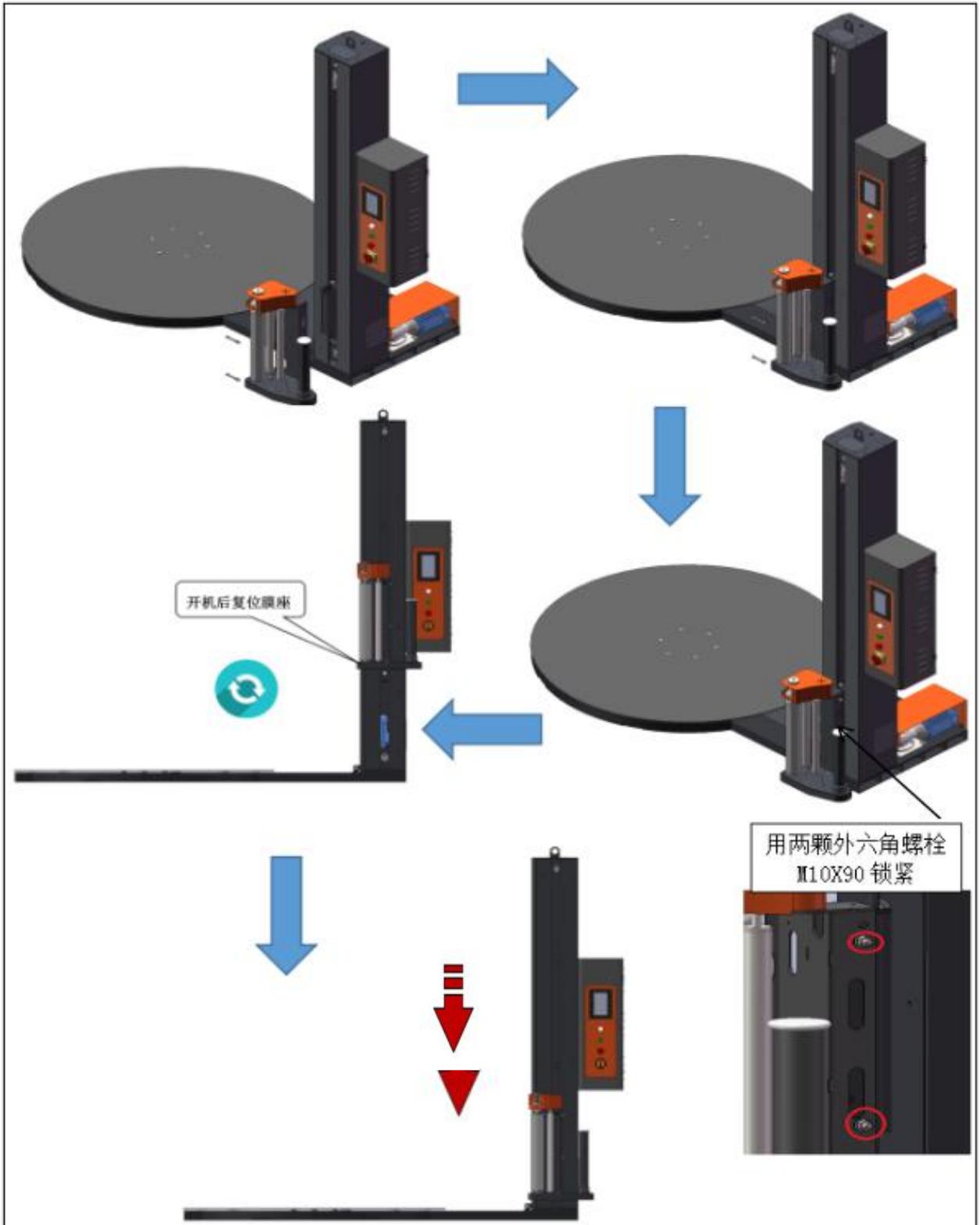
4.5.3 Electric control box installation

- (1) First find the mounting holes on the column and the electric control box.
- (2) Slowly fit the mounting surface of the electric control box and the column in the direction of the arrow.
- (3) Open the door of the electric control box, and lock the electric control box and the column with screws.
- (4) Finally, install the door panel of the electric control box as shown in the figure below.



4.5.4 Film carriage installation

(1) Turn on the power and manually reset the Film carriage to the lower limit. Turn the main power switch counterclockwise to turn off the machine.



5 Instructions

5.1 safety instructions



Warning

Strictly observe the operating safety regulations (refer to Section 2) and the instructions given in this chapter.

5.2 Operator tasks

1. Turn on the machine. See section 5.3.
2. Install the replacement film. See section 5.4.
3. Place a pallet on the Turntable. See section 5.5.
4. Fix the trailing end of the wrapping film to the cargo. See section 5.6.
5. Select a packing mode (see Section 5.13) or continue the current packing mode.
6. See Section 5.7 to start the packaging procedure.
7. The machine will complete a completed packaging cycle. When this cycle is complete, the pallet will stop at the home position.
8. Remove the pallet from the turntable.
9. Switch off the machine (see section 5.8).



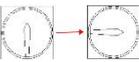
Note: The above tasks for the operator are performed in accordance with standard work procedures. Note: The above tasks for the operator are performed in accordance with standard work procedures.

See the following sections:



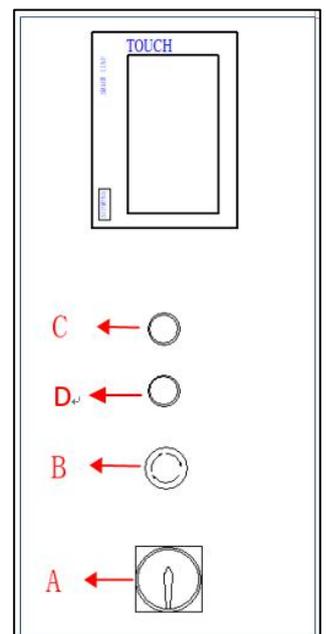
See the following sections:

5.3 Turn on the machine

1. Turn the main switch clockwise (A) 

The power indicator (C) will light up

2. If necessary, release the emergency stop button by (B) Turn the button clockwise.



5.4 Installation and replacement of stretch film



Note

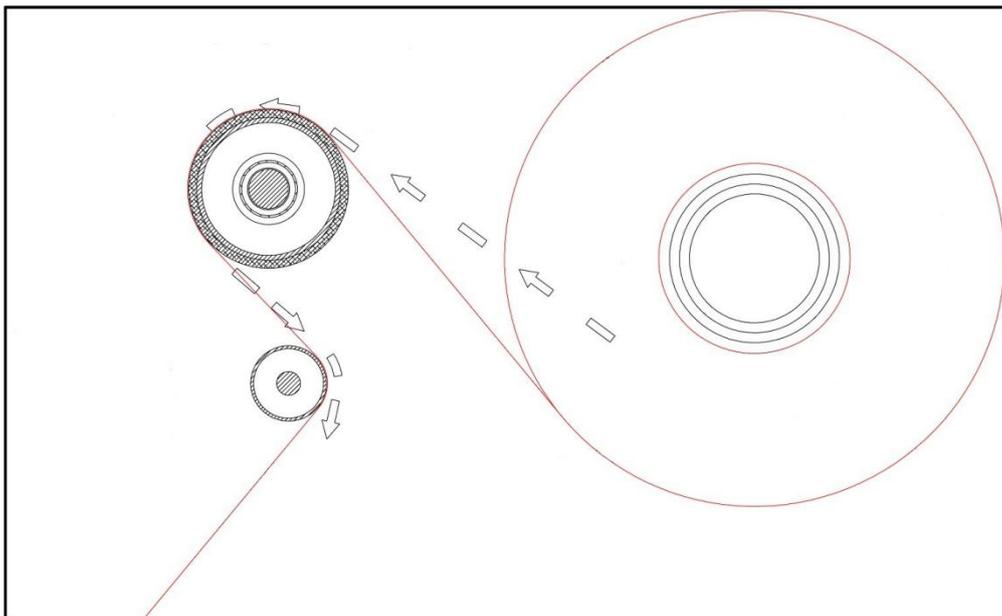
Use only roll types that meet the specifications given in Section 3.5.1.

1. First, ensure that the wrapping film is replaced while the machine is safely stopped.
2. Lift the used wrapping film core up from the roll holder and take it out.
3. Replace the film with a new standard-compliant wrapping film and place it on the film roll holder.
4. Follow the instruction of the arrow on the film carriage to convey the wound film through the guide roller.

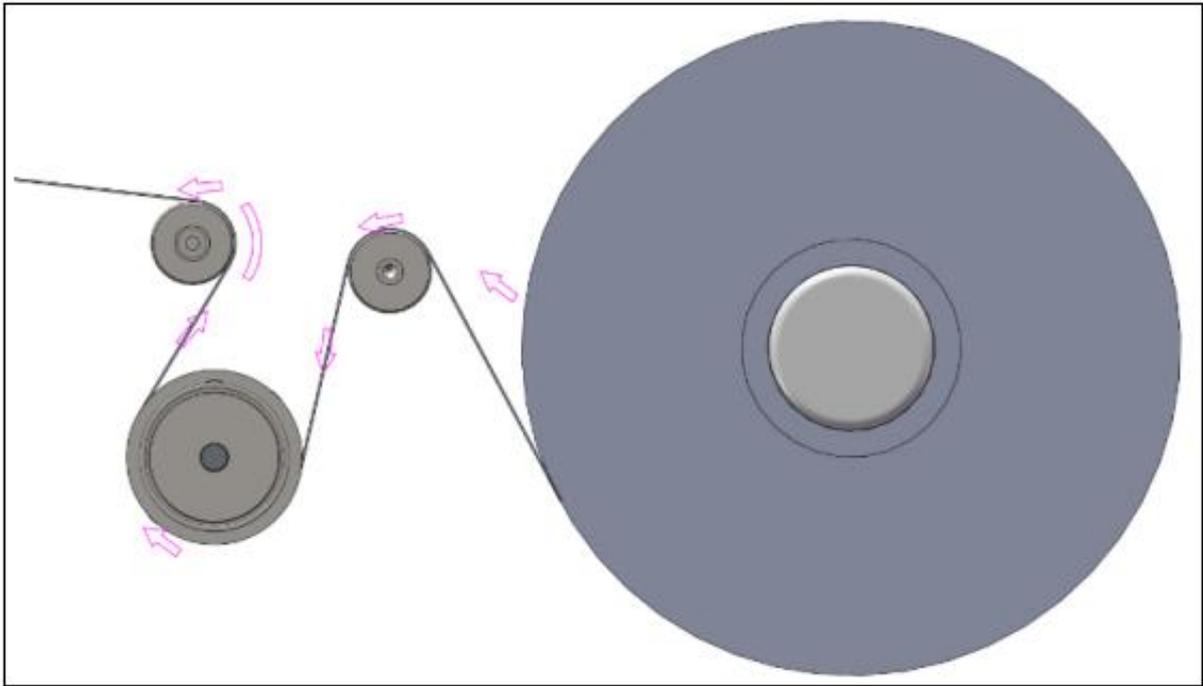


Note: Most types of wrapping film have an adhesive surface (A), which is called "adhesion." Since the inner side of the pallet must be wrapped with an adhesive material, make sure that the clings do not face the machine. If the film roll is the adhesive side that was originally wound on the inside, the wrapping film is worn as shown on the right

5. Feed the wrapping film into the turntable.



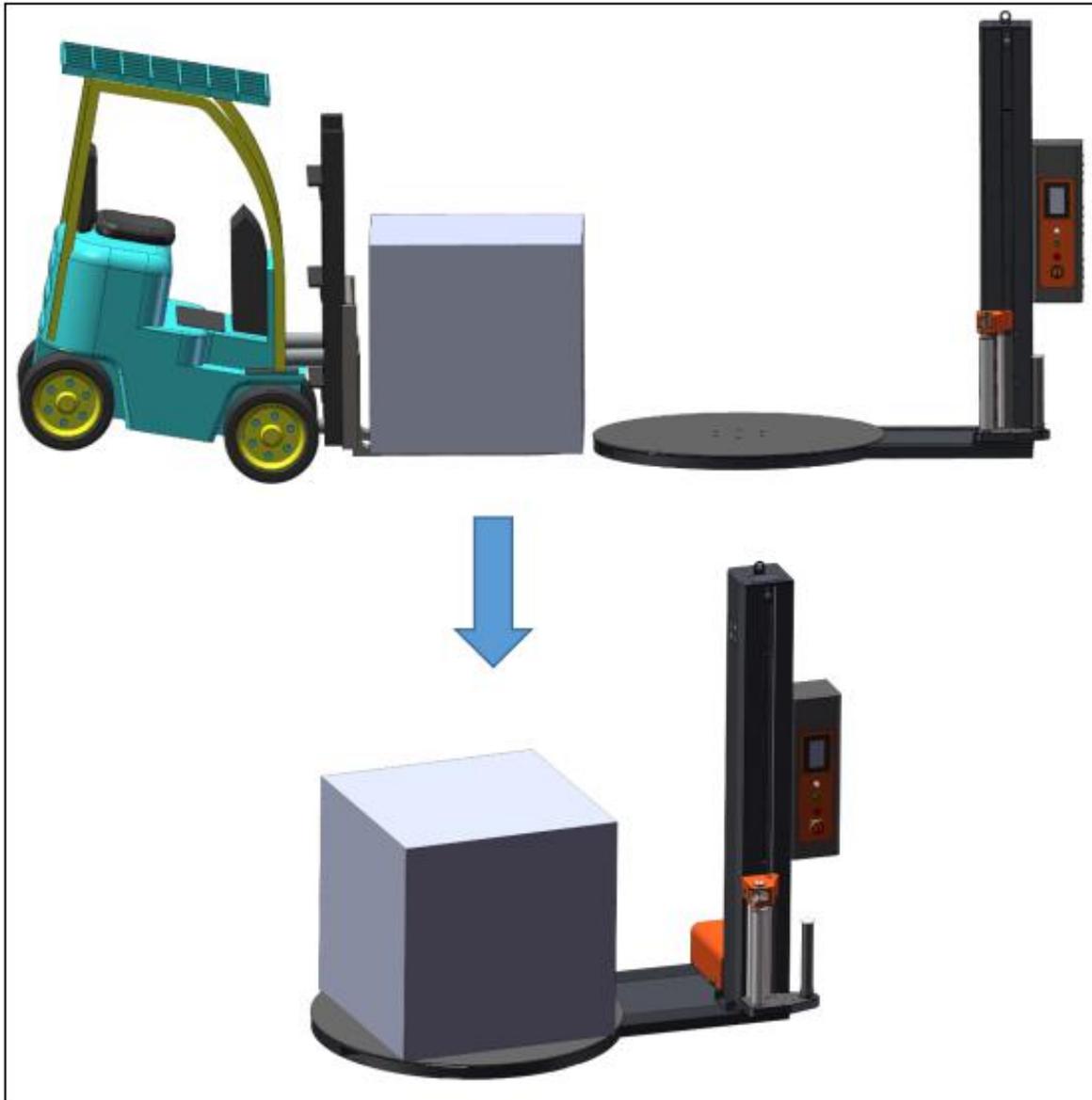
6. Tie the ends of the wrapping film to a pallet and the machine is now ready for packaging.



5.5 loading pallet instructions

The operation of the standard wrapping machine can be completed by an operator. The basic flow is shown in the figure below.

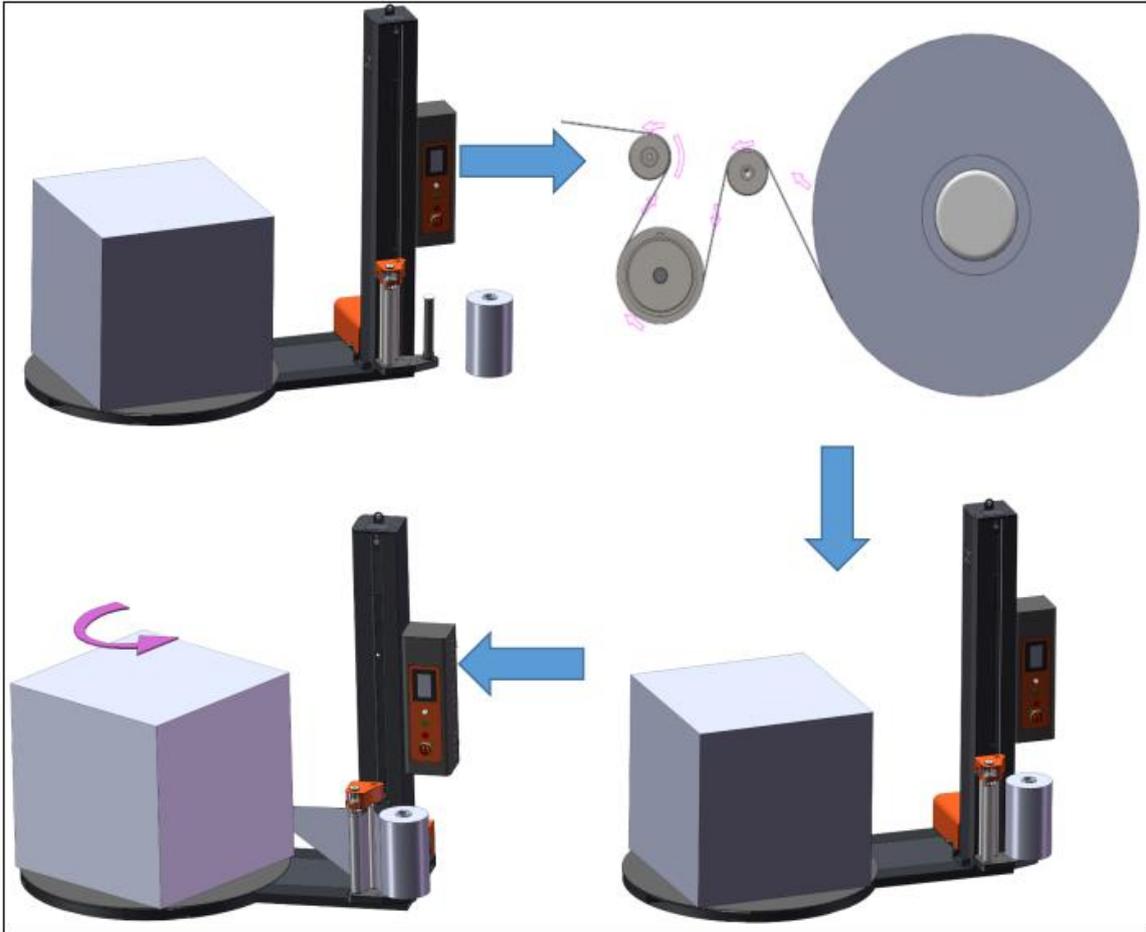
1. First make sure that there are no people or obstacles within 1 meter around the machine;
2. The goods are transferred to a standard wrapping machine by a forklift and placed as far as possible in the center of the turntable.



5.6 Stretch film installation operation

After the goods are placed, the first working packaging film needs to be manually hung on the broken film. The operation process is shown in the figure below.

1. After the film roll is placed, manually stretch the film to a sufficient length;
2. Expand the film with sufficient tackiness;
3. Pass the film through the film as indicated by the arrow on the film carriage
4. Pull the film by hand to attach it to the cargo, and squeeze it by hand so that it does not fall off when turning.



5.7 Turn on device

1. Check for error messages. See section 7.2.
2. Press one of the start buttons:

- Start button on the main control panel
- Start button on touch screen

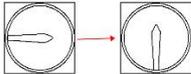
After the start operation is completed, the turntable starts to rotate, and the pallet is wound around the film. At the end of the wrapping cycle, the turntable stops at the origin position.



Note

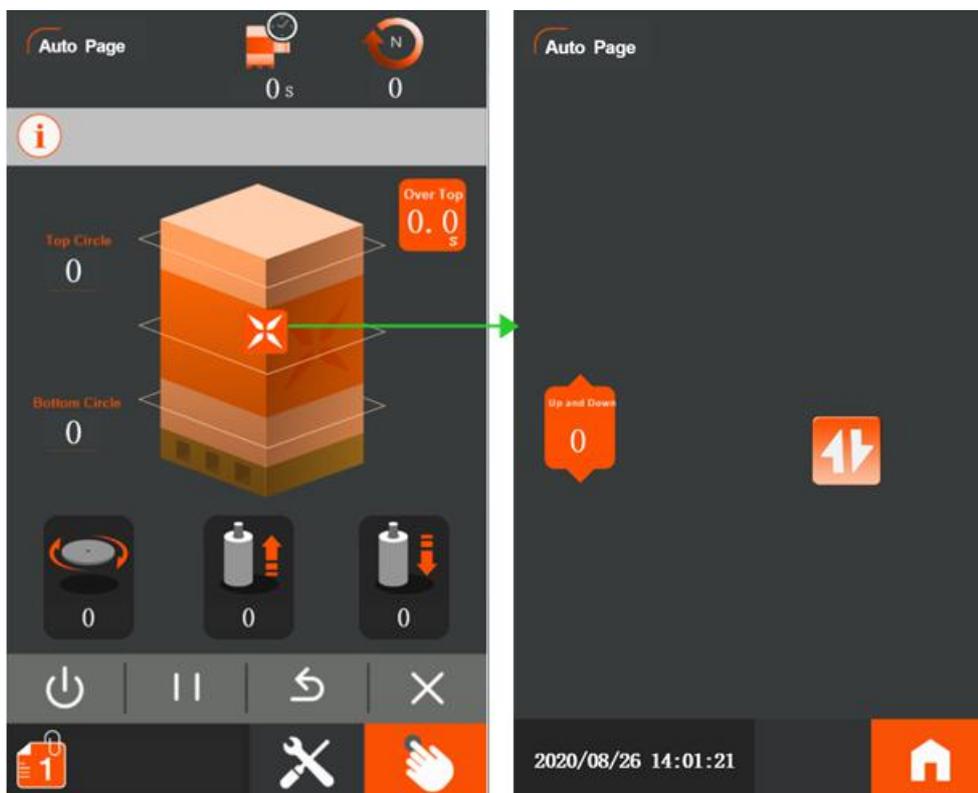
The machine can be paused during the wrapping process.

5.8 Turn off the device

Turn off the machine if not used for a long time: Turn  the main switch counterclockwise.

5.9 Touch screen homepage

1. Click anywhere on the start up page to enter the touch screen automatic operation screen.



| Number | Name | Icon | Description |
|--------|-------------------------------------|---|--|
| A | Wrap ping mode settin g |  | Number of turns around the film (reference setting value: 2) |
| | |  | The number of turns around the bottom of the film |

| | | | |
|---|-------------------------|---|---|
| | | | (reference setting value: 2) |
| | |  | Number of wrapping up and down (reference setting value: 1) |
| | |  | Time to continue rising after detecting the height of the cargo (reference setting value: 2.5) |
| B | Speed setting | | |
| | |  | Turntable speed: Turntable rotation speed (Setting range 0-100) |
| | |  | Film up Speed: Film up Speed |
| | |  | Film down speed: Film down speed of the Film carriage |
| C | Basic operation buttons |  | Start: The device automatically runs the start button |
| | |  | Pause: Pause the current motion of the device. Press again to resume the pause |
| | |  | Reset: Move the device to the origin position, the device can only be started when it is at the origin position |
| | |  | Stop: stop the current action of the device |

| | | | |
|---|------------|---|---|
| D | Manu al |  | Independent control of different locations of the device. |
| E | Set up |  | The administrator performs related settings on the device |

5.10 Pause packaging cycle (stop normally)

The machine can be temporarily stopped during the packaging cycle:

1. Press the touch screen pause key. The machine will gradually slow down and stop.
2. Resume packaging by pressing the pause button again.



Note

The machine will continue to run where it left off and complete the packaging process.

5.11 Automatic operation stop (emergency stop)

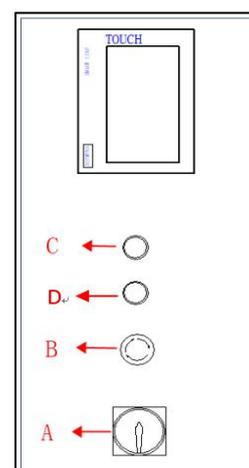
In case of emergency:

1. Press the emergency stop button (B).
2. The machine will stop immediately and the packing process will be aborted.



Note

After an emergency stop, the packaging cycle cannot be resumed.

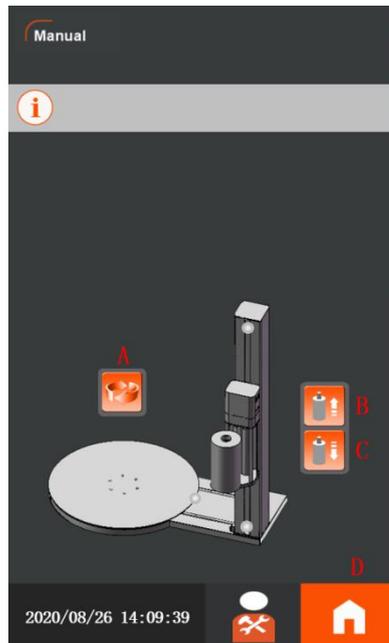


will

5.12 Return to origin

When the device is not at the origin:

1. Press the reset button 
2. The machine will automatically reset to the origin position



5.13 Manual operation

You can select the manual operation mode on the screen:

Press  key, Go to the manual page.

1. Press the Turntable (A). The Turntable starts to rotate. Press the Turntable again. Stop rotation.
2. Press up (B) to start raising the Film carriage, press again or touch. The film carriage stops rising when it hits the upper limit.
3. Press down (C) to start Film down the Film carriage, and then press it again or touch the lower limit
4. Press D to return to the automatic interface

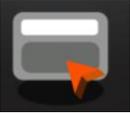


Note

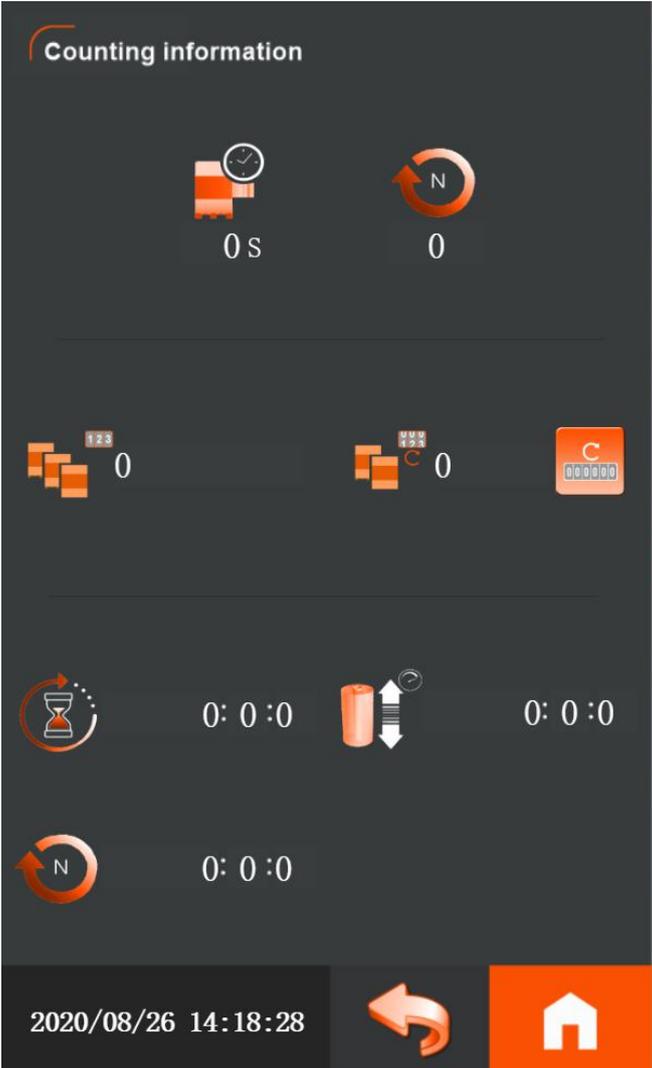
Speed of manual operation runs at the speed set on the automatic screen.

5.14 Administrator settings



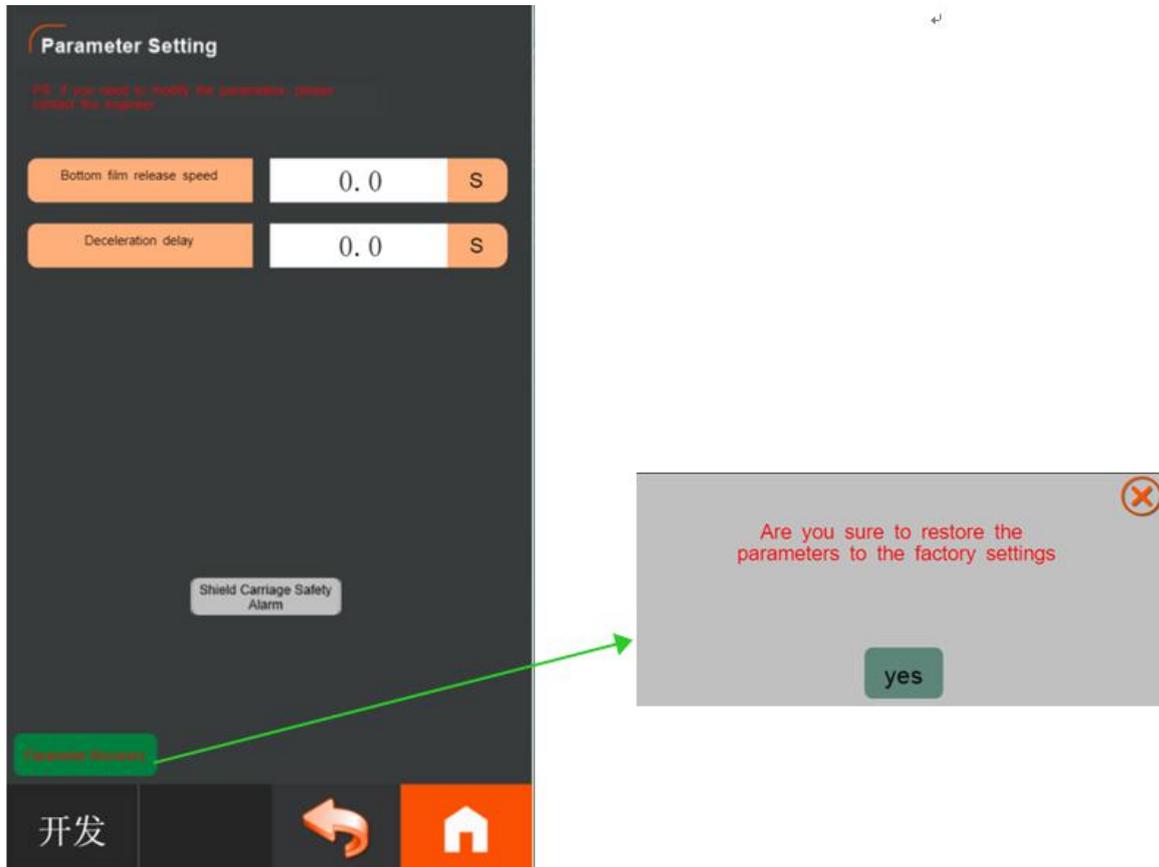
| Number | Name | Icon | Description |
|--------|---------------------------|---|---|
| A | Counting information |  | Jump to the setting status page |
| B | parameter settings |  | Jump to the parameter setting page |
| C | Multiple choice interface |  | Jump to multi-select interface page |
| D | System time |  | Display the current system time |
| E | User password settings |  | Jump to user password setting interface |
| F | Homepage |  | Return to automatic screen |

5.15 Equipment status



| Number | Name | Icon | Description |
|--------|---------------------------------------|---|--|
| A | period time |  | The time it takes for the current cargo to wrap |
| B | Cycle number |  | The total number of turns used for the current cargo winding |
| C | Total number of completed pallets |  | Total number of pallets completed by the equipment |
| D | Number of pallets completed at a time |  | The number of equipment completed in a single |
| E | Clear key |  | Clear the pallet count for a single completion |
| F | Total running time |  | Total running winding time of equipment |
| G | Lift running time |  | Total running time of lifting motor |
| H | Turntable running time |  | Total running time of turntable motor |

5.16 Multiple choice interface



| Number | Name | Icon |
|--------|------------------------------------|---|
| A | Deceleration delay greater than 60 | When the turntable speed of automatic operation is greater than 60, the last lap deceleration delay |
| B | Deceleration delay less than 60 | When the turntable speed of automatic operation is less than 60, the last lap deceleration delay |
| C | Shield and anti-pressure | Cancel anti-pressure function ⁴⁶ |

5.17 Device Information



| Number | Name | Icon | Description |
|--------|----------------------------|---|---|
| A | I / O monitoring interface |  | Jump to I / O monitoring interface |
| B | Factory information |  | Jump to the factory information interface |
| C | Alarm display |  | Jump to the alarm display page |
| D | Chinese Version |  | Switch to Chinese display |
| E | English version |  | Switch to English display |

6 Care and maintenance instructions

6.1 Safety instructions



Warning

Strictly follow the safety instructions that apply during maintenance (see section 2.2.10) and the instructions given in this chapter.

6.2 Preparation for maintenance

Before starting any maintenance work (or cleaning):

1. Turn the main switch to the "OFF" position.
2. Unplug the power plug from the power outlet.
3. Wait for at least two minutes.

6.3 End of maintenance

Cleaning the rollers on the film carriage

6.5 Check the function of safety facilities



Warning

Be careful of the machines that need to be operated when checking safety facilities.

1. Check that all safety decals and instructions are legible
2. Inspect the power cord for damage.
3. Check the following facilities:
 - Emergency stop button (see section 2.5.2);
 - Film carriage safety plate and foot protection switch.

6.6 **Cleaning** machine

1. Check that the system is safe, see section 6.2.
2. Clean the machine with a dry cloth or mild detergent.



Warning

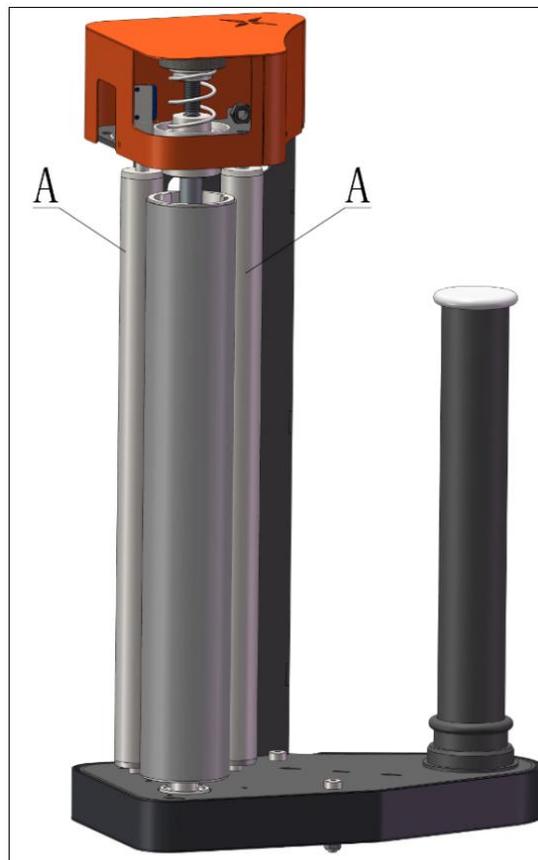
Never use solvents, gasoline, etc. to clean the machine

6.7 **Cleaning** the rollers on the film carriage

Note

Some types of film leave a layer of sticky glue on the surface of the film carriage roller, which can cause the film to slide on the roller.

1. Check that the system is safe, see section 6.2.
2. Scrub the surface of the roller (A) with alcohol to restore the adhesion between the roller and the film.



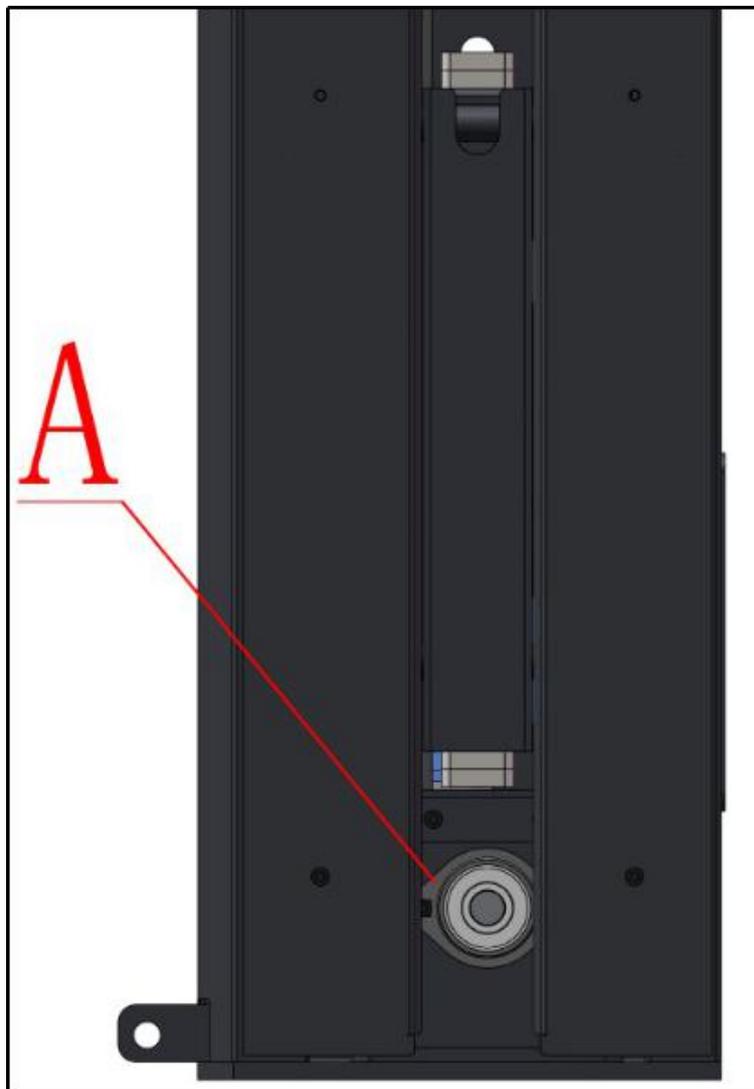
6.8 Add lubricating oil to seated bearings

Note

Before leaving the factory, the bearing seat in the column has been lubricated. If it is used for a long time, it is still necessary to add lubricating oil.



1. Check the system for security, see section 6.2
2. Operate the machine to manually raise the diaphragm seat to facilitate adding lubricant to the seated bearing
3. Add lubricating oil to the oil inlet of the bearing block (A) of the lifting power frame



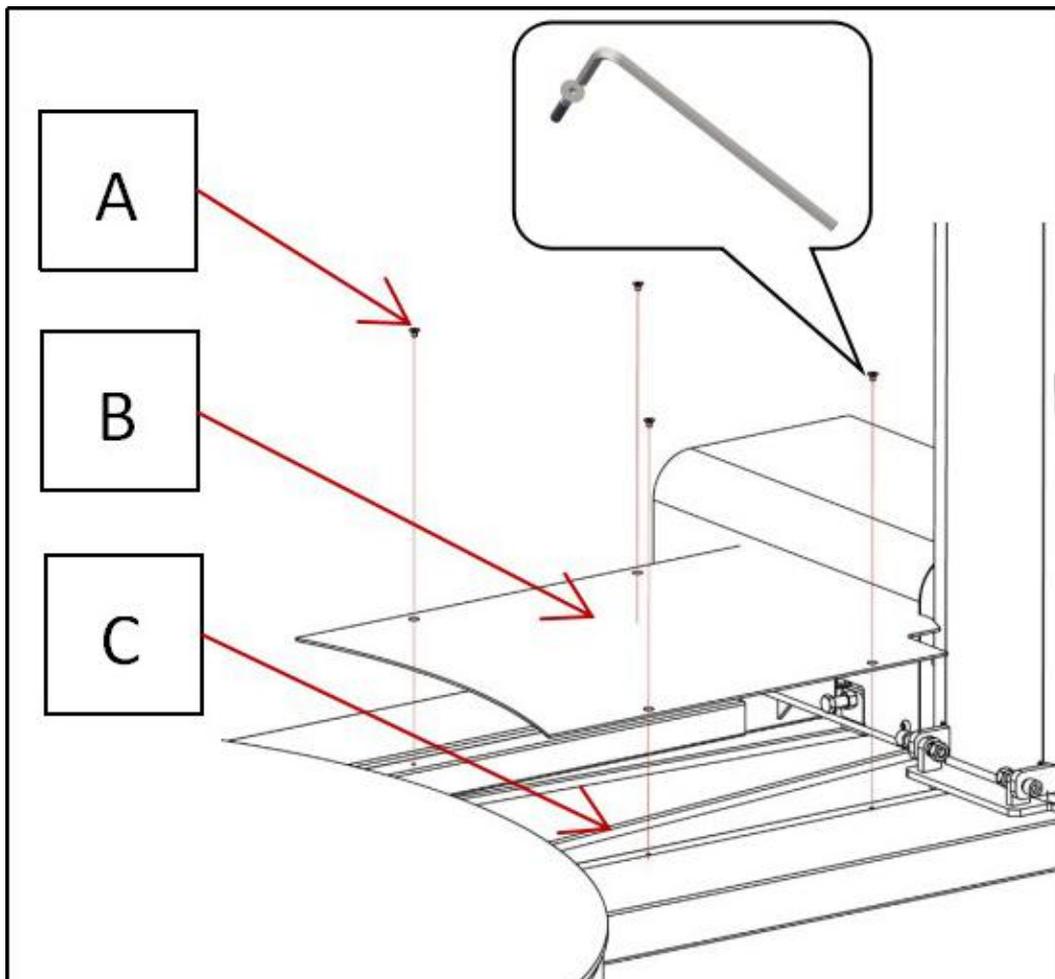
6.9 Check turntable chain tension and lubricate



Note

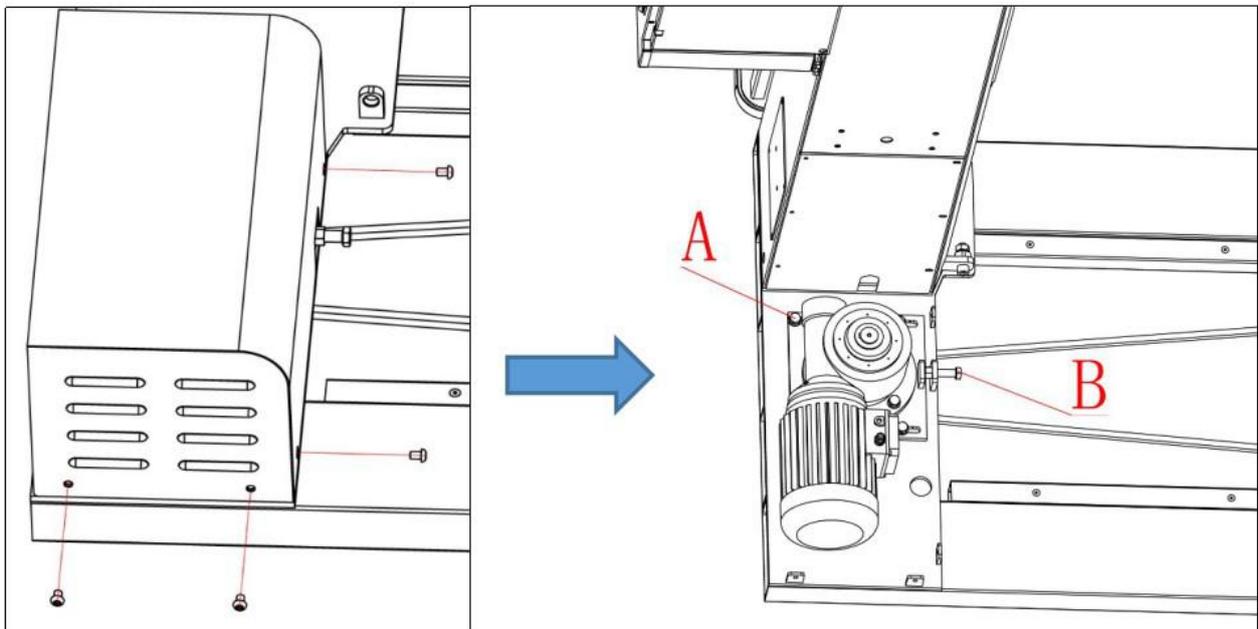
Before leaving the factory, the Turntable drive chain has been  lubricated, and it will still need to be  added  for a long time.

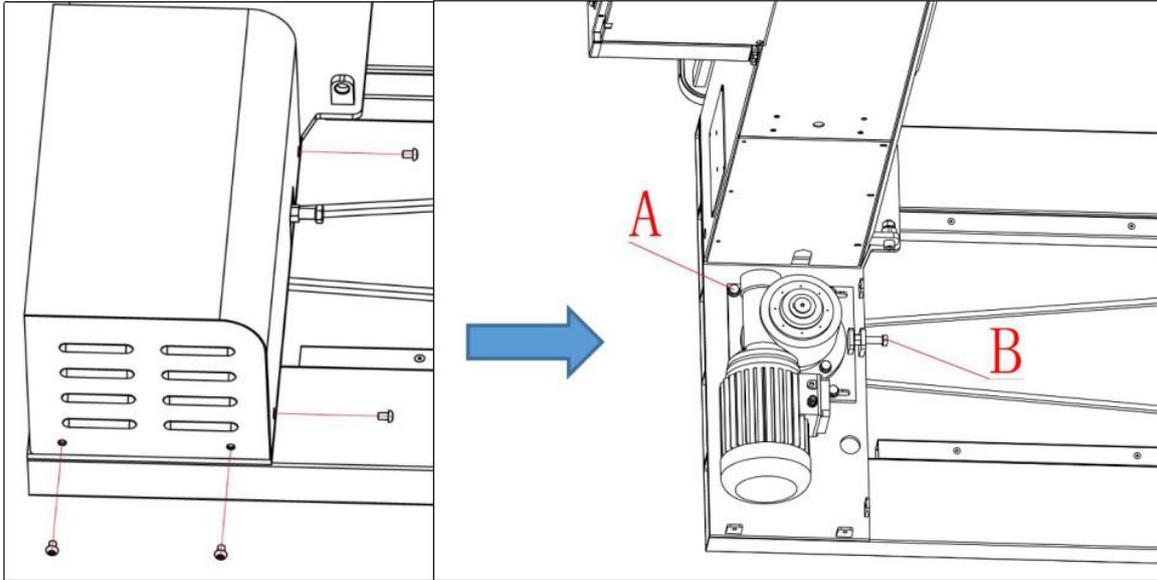
1. Check the system for security, see section 6.2.
2. Loosen the fasteners (A).
3. Remove the chain cover (B).
4. Check the tension of the transmission chain (C)
5. Lubricate the drive chain (C) with chain grease.
6. Attach the chain cover (B).



If the chain is loose, tension the chain as follows:

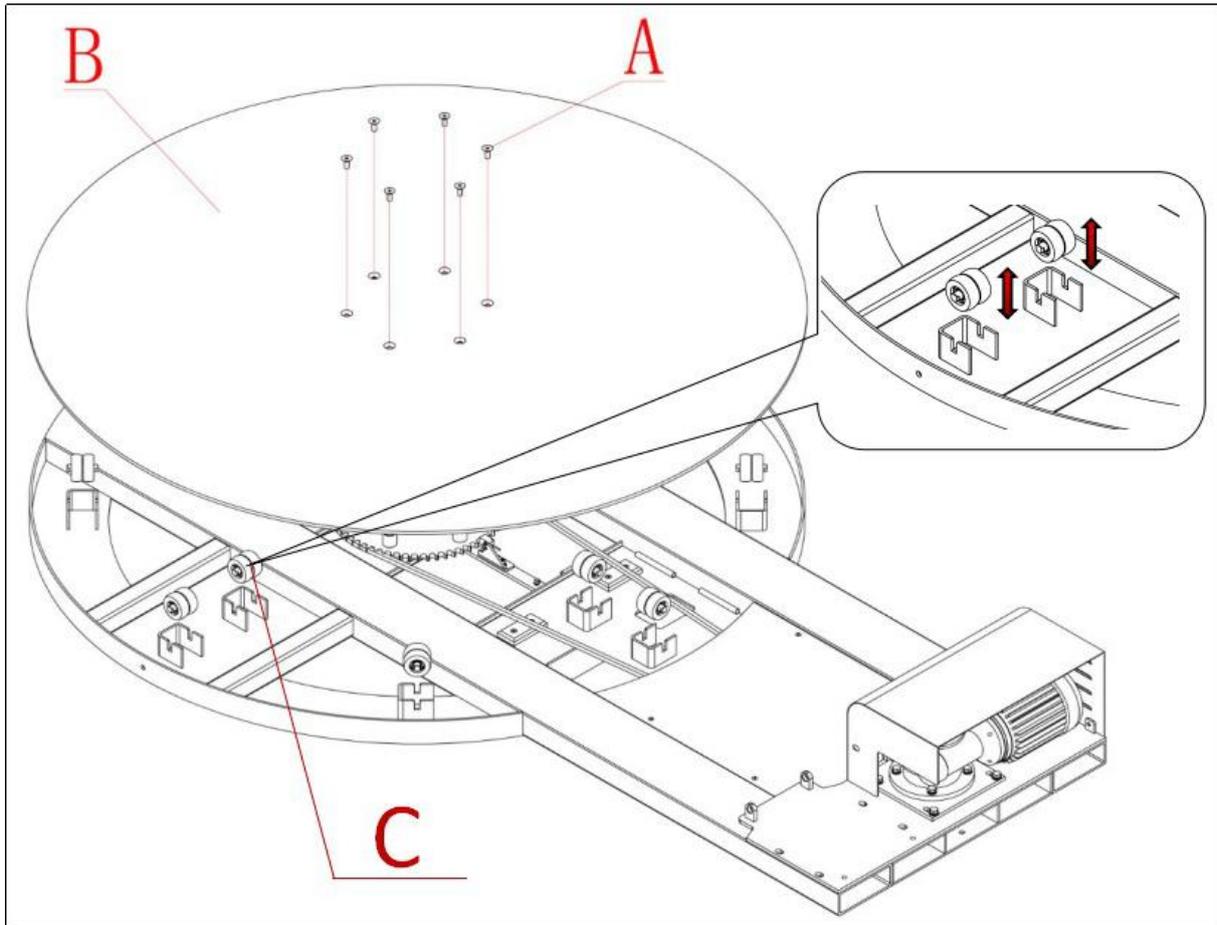
1. Loosen the four fasteners of the Turntable motor cover, and slightly loosen the fasteners (A) of the motor mounting plate.
2. Adjust the chain tension with the chain tension bolt (B).
3. Tighten the four fasteners (A).
4. Check the tension of the drive chain again.
5. After the adjustment is complete, proceed in the reverse order and reinstall the removed parts.





6.10 Checking the travel wheels of the Turntable

1. Check the system for security, see section 6.2
2. Loosen the six fasteners (A) on the turntable (B).
3. Remove the turntable (B).
4. Check the condition of the walking wheel (C).
5. If damaged, replace the wheel assembly.
6. After the inspection and repair are completed, proceed in the reverse order and reinstall the removed parts.



6.11 Check column chain tension and lubricate

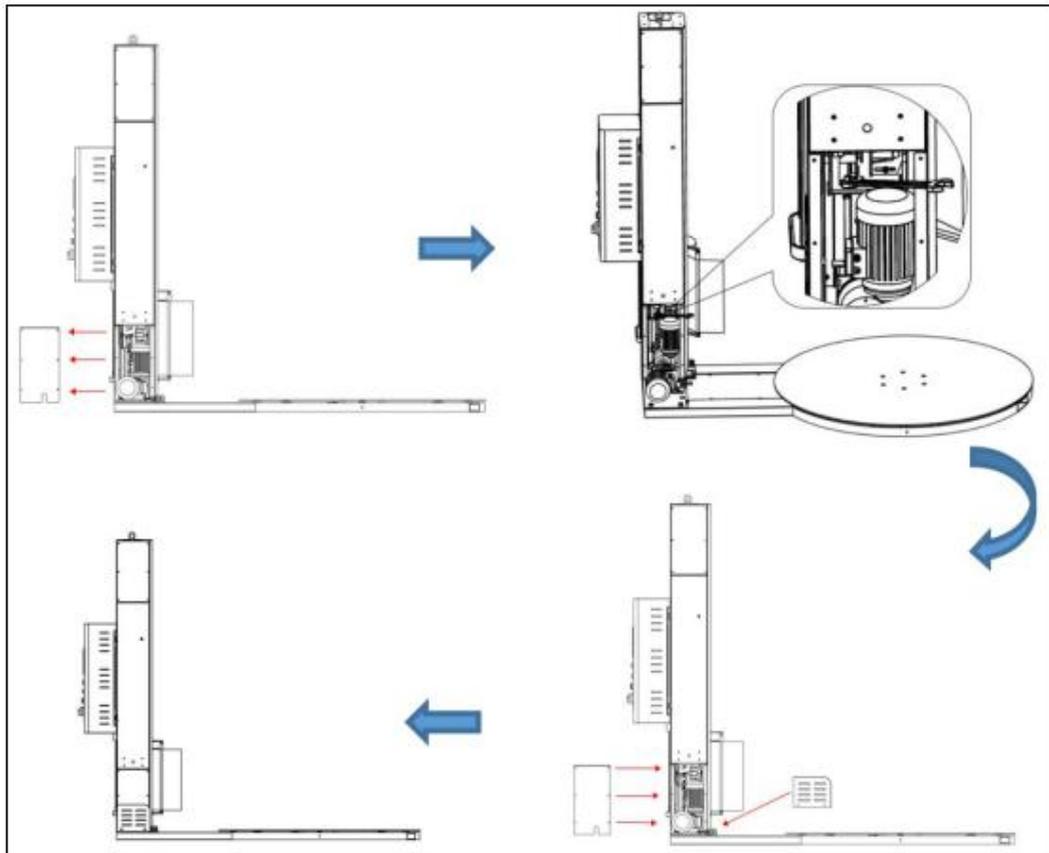


Note

Before leaving the factory, the post drive chain has been  lubricated, and it will still need to be added  for a long time.

1. Check the system for safety, see section 6.2;
2. Refer to 6.11 to check the tension of the Turntable chain and lubricate, first **loosen the four fasteners of the Turntable motor cover;**
3. Then loosen the pillar lower cover fastener and remove the pillar lower cover, as shown in the figure below;
4. Manually raise the film carriage to the bottom of the column with sufficient spanner space;
5. Check the tension of the column transmission chain;
6. If the chain is loose, use a wrench to tighten the tension bolts on the chain;
7. Lubricate the tower chain with chain grease;

8. First install the pillar lower cover, and then install the Turntable motor cover.
9. Reset Film carriage



6.12 Adjust the film seat resistance Rabi and check the friction plate

1. Check that the system is safe and correct;
2. Adjust the knob to achieve the ideal resistance effect (as shown in the figure below);
3. If the desired resistance is still not achieved after adjustment, try to replace the friction plate;



7 Troubleshooting instructions

7.1 Safety instructions



Warning

Strict compliance with safety regulations

For repairs and troubleshooting see 2.2.11

7.2 Troubleshooting

7.2.1 Inverter alarm message description

The following table shows the alarm messages, possible causes, and solutions to be taken on the operation panel of the inverter.

| Serial number | malfunction | the reason | deal with |
|---------------|-------------|------------|-----------|
|---------------|-------------|------------|-----------|

| | | | |
|---|--------------------|---|---|
| 1 | F1 Overcurrent | <ul style="list-style-type: none"> The motor power (P0307) is not the same as the inverter power (r0206). Motor wire short Ground Fault <p>r0949 = 0: hardware report r0949 = 1: software report r0949 = 22: hardware report</p> | <p>Check the following:</p> <ul style="list-style-type: none"> The motor power (P0307) must be the same as the inverter power (r0206). The cable length must not exceed the permitted limits. There must be no short circuit or ground fault in the motor cable and inside the motor. The motor parameters must match the actual motor used. The stator resistance value (P0350) must be correct. The motor must not be blocked or overloaded. Increase the ramp-up time (P1120) Reduce start-up lifting strength (P1312) |
| 2 | F2 Overvoltage | <ul style="list-style-type: none"> Power supply voltage is too high Motor is in regeneration mode <p>r0949 = 0: hardware report r0949 = 1 or 2: software report</p> | <p>Check the following:</p> <ul style="list-style-type: none"> The power supply voltage (P0210) must be within the range specified on the nameplate. The ramp-down time (P1121) must match the load inertia. The required braking power must be within the specified range. The Vdc controller must be enabled (P1240) and the parameter settings are correct. <p>Explanation:</p> <p>Excessive ramp down or motor driven by an active load may cause the motor to be in regenerative mode.</p> <p>The higher the inertia, the longer the ramp time is required; otherwise, a braking resistor needs to be connected.</p> |
| 3 | F3 Undervoltage | <ul style="list-style-type: none"> electricity failure. The impact load exceeds the specified limit. <p>r0949 = 0: hardware report r0949 = 1 or 2: software report</p> | <p>Check the power supply voltage.</p> |

| | | | |
|---|-------------------------------|---|---|
| 4 | F4 Inverter overheating | <ul style="list-style-type: none"> • Inverter overload • Insufficient ventilation • Pulse frequency is too high • Ambient temperature is too high • Fan is not working | <p>Check the following:</p> <ul style="list-style-type: none"> • Is the load or load cycle too high? • Motor power (P0307) must match inverter power (R0206). • Pulse frequency must be set to the default value • The ambient temperature is too high? • The fan must rotate when the inverter is running |
| 5 | F4 Inverter overheating | <ul style="list-style-type: none"> • Inverter overload • Insufficient ventilation • Pulse frequency is too high • Ambient temperature is too high • Fan is not working | <p>Check the following:</p> <ul style="list-style-type: none"> • Is the load or load cycle too high? • The motor power (P0307) must match the inverter power (R0206). • Pulse frequency must be set to the default value • The ambient temperature is too high? • The fan must rotate when the inverter is running |
| 6 | F5 变频器 I2t | <ul style="list-style-type: none"> • 变频器过载。 • 负载循环需求过高。 • 电机功率（P0307）超过变频器功率（r0206）。 | <p>检查下列各项：</p> <ul style="list-style-type: none"> • 负载循环必须处于规定范围内。 • 电机功率（P0307）必须匹配变频器功率（r0206）。 <p>说明：F5 故障只有在变频器过载利用率（r0036）低于变频器 I2t 报警（P0294）才能被清除。</p> |
| 7 | F11 电机过热 | <ul style="list-style-type: none"> • 电机过载 | <p>检查下列各项：</p> <ul style="list-style-type: none"> • 负载或负载阶跃是否过高？ • 电机标称过热参数（P0626 - P0628）必须设置正确 • 电机温度报警阈值（P0604）必须匹配 |
| 8 | A501 Current limit | <ul style="list-style-type: none"> • The motor power is inconsistent with the inverter power • Motor lead is too long • Ground Fault | See F1. |

| | | | |
|----|-----------------------------------|---|---|
| | | <ul style="list-style-type: none"> • Small size motor (120 W) in FCC and light <p>May cause higher current values when operating under load conditions</p> | V / f control mode for smaller motors |
| 9 | A502 Over-voltage limit | Over voltage limit reached. If Vdc control is disabled(P1240 = 0), this alarm may occur when the ramp is down. | If the alarm is always displayed, check the inverter input voltage. |
| 10 | A503 Under voltage limit | <ul style="list-style-type: none"> • electricity failure. • The power supply voltage and DC bus voltage (r0026) are below the specified limits. | Check the power supply voltage. |
| 11 | A504 Inverter overheating | The alarm threshold for the heat sink temperature of the inverter, the alarm threshold for the chip junction temperature, or the allowable change in the temperature at the junction of the chip has caused the pulse frequency Decrease and / or decrease the output frequency (depending on the parameter settings in P0290). | <p>Explanation: r0037 [0]: radiator temperature r0037 [1]: Chip junction temperature (including heat sink) check The following:</p> <ul style="list-style-type: none"> • Ambient temperature must be within specified limits • Load conditions and load steps must be appropriate • The fan must rotate when the inverter is running |
| 12 | A506 IGBT junction temperature | Overload alarm. The difference between the junction temperature of the heat sink and the IGBT exceeds the alarm limit. | Check whether the load step and impact load are within the specified limits. |

| | | | |
|----|-------------------------------|---|---|
| | rise alarm | | |
| 13 | A511 Motor overheating I2t | <ul style="list-style-type: none"> • Motor overload. • The duty cycle or load step is too high. | <p>Regardless of the form of temperature determination, the following should be checked:</p> <ul style="list-style-type: none"> • P0604 Motor temperature alarm threshold • P0625 Motor ambient temperature • Check that the nameplate data is correct. If it is not correct, perform quick commissioning. By performing motor data identification • (P1900 = 2), accurate equivalent circuit data can be obtained. • Check whether the motor weight (P0344) is reasonable. If necessary, replace the motor. • If the motor is not a Siemens standard motor, change the standard overheating temperature through P0626, P0627, and P0628. |
| 14 | A922 Inverter without load | The inverter is unloaded. Therefore, under normal load conditions, some functions may not be implemented. | Check whether the motor is connected to the inverter. |

7.2.3 Common mechanical faults and troubleshooting

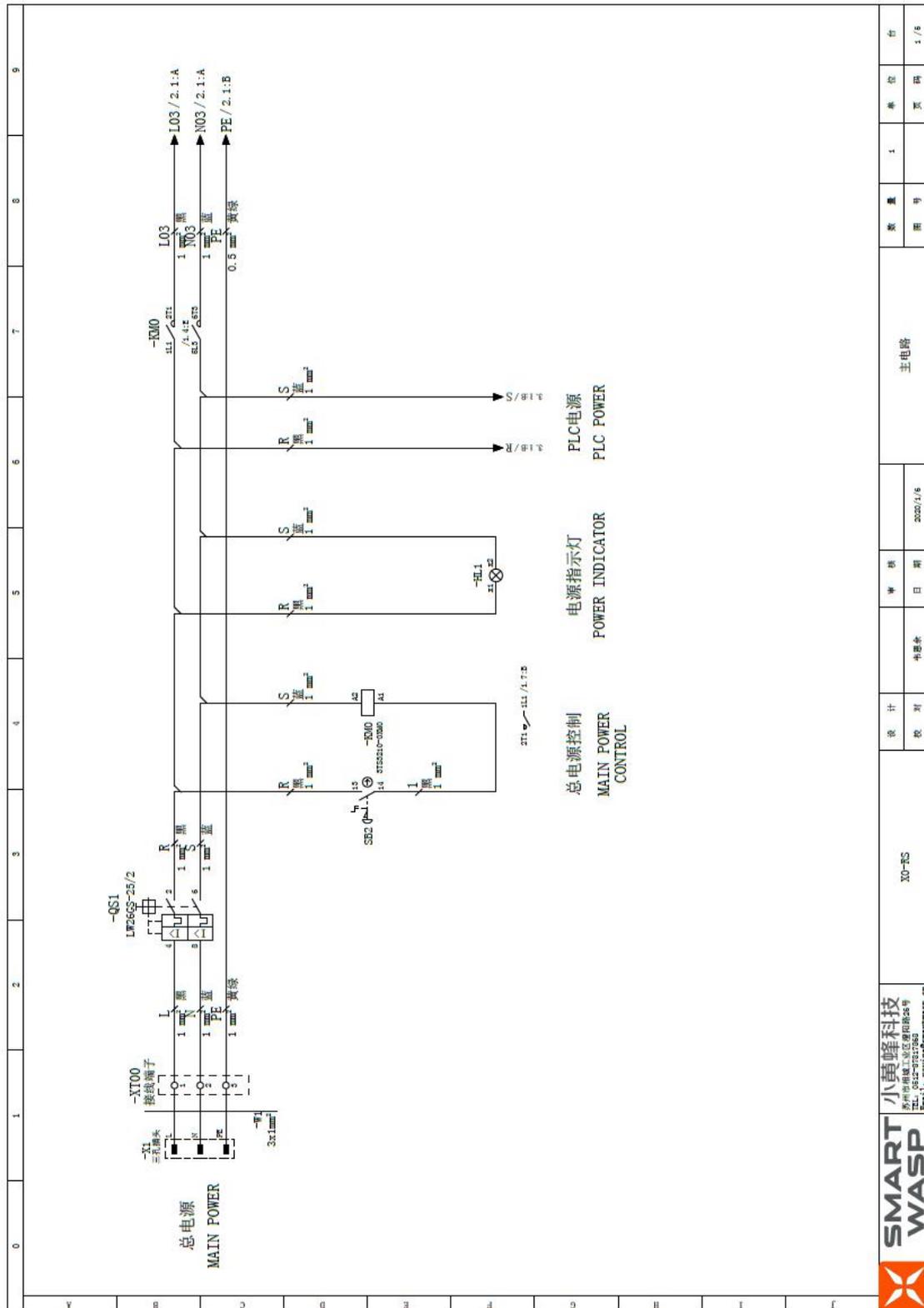
| Serial number | Fault description | possible reason | Solution |
|---------------|--|--|--|
| 1 | Turntable does not rotate after start up | <ol style="list-style-type: none"> 1. Emergency stop button was pressed 2. The chain comes off or breaks | <ol style="list-style-type: none"> 1. Turn the "emergency stop button" on the operation panel to eliminate the "emergency stop alarm", and the red light at the top will disappear. 2. Open the Turntable and bottom |

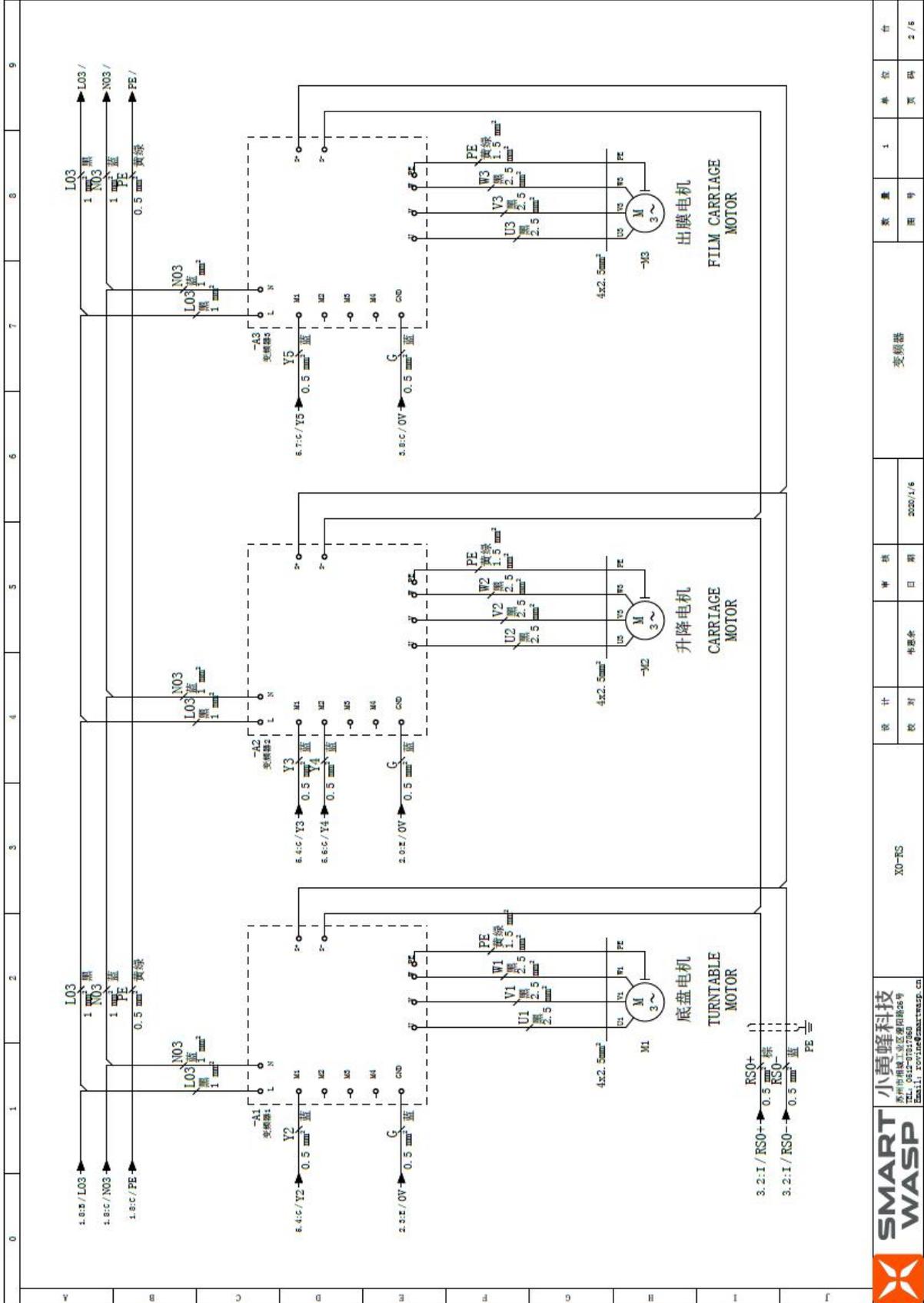
| | | | |
|---|--|--|---|
| | | | door, change the chain, and adjust the chain tension |
| 2 | Abnormal sound when the turntable rotates Or difficult to start | 1.Equipment is placed on uneven ground 2.Broken bottom roller 3.Lack of lubricant on the chain 4.Overweight | 1.Place the device on a flat surface and keep it clean 2.Reinstall the bottom roller or replace 3.See "Maintenance and Maintenance" for details 4.Check whether the bottom roller is loose or damaged, and check the weight of the cargo (the cargo should be selected within the rated load range. For detailed range values, refer to the technical parameter table) |
| 3 | turntable does not reset Or reset inaccurate | 1.Loose or damaged sensor at the bottom of the turntable 2.Line damage | 1 Adjust the distance between the sensor and the sensor sheet or replace the sensor. 2 Check the wiring and replace the faulty wiring |
| 4 | Membrane abnormal sound | 1.Lack of lubricant on the chain 2.Foreign body in the chain | 1.See 6 Care and Maintenance Instructions for details 2. Remove foreign body |
| 5 | Unable to pack on top of the cargo | 1. Sensor detects position deviation 2. Damaged sensor 3. Overshoot time is too short | 1.Adjust sensor to detect distance or position 2.Replace the sensor 3.Adjusted the top room (see 5 operating instructions for details) |
| 6 | Film carriage abnormal film | 1. Sensor detects position deviation 2. Damaged sensor 3.The chain comes off, breaks, or has foreign objects | 1.Adjust sensor to detect distance or position 2.Replace the sensor 3.Clean up foreign objects or rein stall the chain |
| 7 | Film wrapping is too tight / too loose / pulled off / | 1.The film-pulling roller is stuck with debris 2.Large difference between | 1. Use alcohol to clean the surface of the pull-film roller (do not use sharp tools such as a knife to clean) |

| | | | |
|---|-------------------------------|---|--|
| | broken | film release speed and Turntable speed | 2.Adjust the motor speed (see 5 operating instructions for details) |
| 8 | Film carriage back film | 1.Film carriage power roller reverse 2. Untightened film during operation | 1.Check the line, if necessary, change U2 / V2 2.Tighten film to prevent film rolling when applying film |
| 9 | Machine starts without action | 1. Power is not plugged in 2.Emergency stop button was pressed 3.Inverter alarm | 1.Insert the power plug 2.Rotate the emergency stop button to eliminate the emergency stop 3.Press the "OK" button of the inverter |

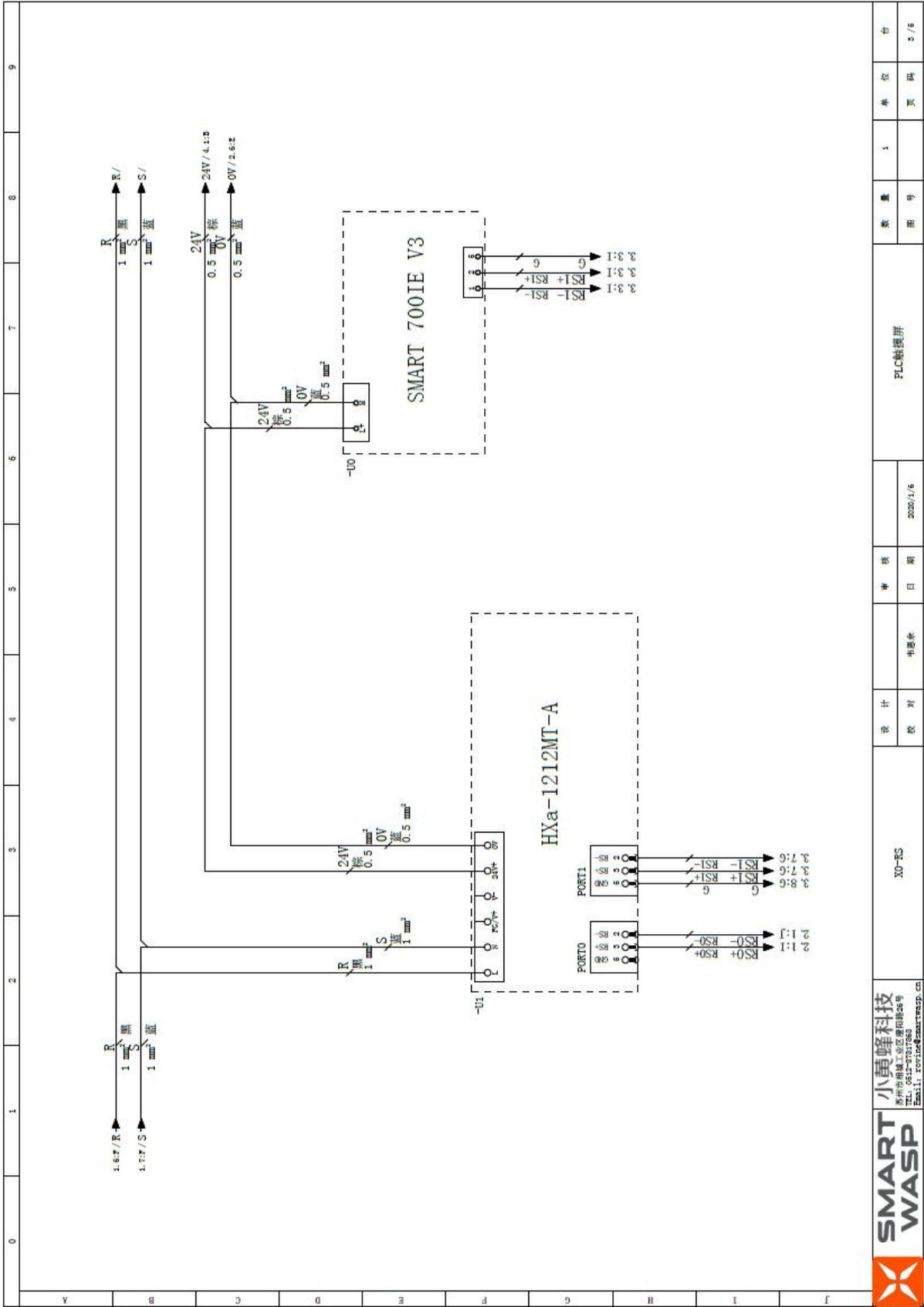
8 Appendix

8.1 Electrical schematic





| | | | | | |
|---|-------|----|-----|----|----------|
| 图号 | 1 | 数量 | 1 | 单位 | 台 |
| | 图号 | | | | 页 |
| 变压器 | | | | | |
| 设计 | X0-RS | | 审核 | 日期 | 2020/1/6 |
| 校对 | | | 中惠东 | | |
| 小黄蜂科技 苏州市相城区阳澄湖26号 TEL: 0512-97517950 EMAIL: support@smartwasp.cn | | | | | |



小黄蜂科技
 苏州工业园区南阳路26号
 TEL: 0512-93197880
 Email: support@smartwasp.cn

XO-ES

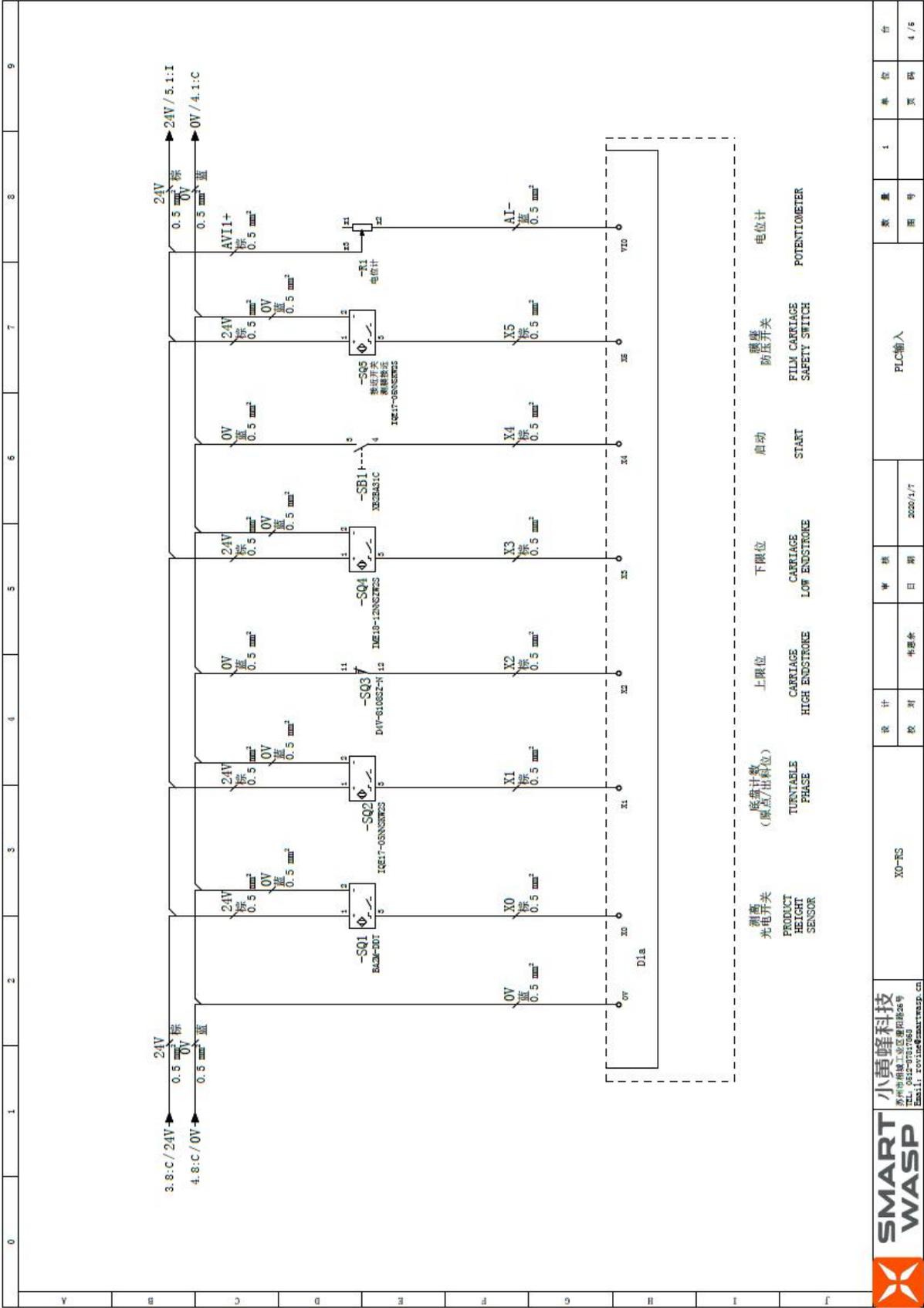
设计
校对

审核
日期

2020/1/6

PLC终端屏

数量 1
 图号
 单位
 页码
 5/8



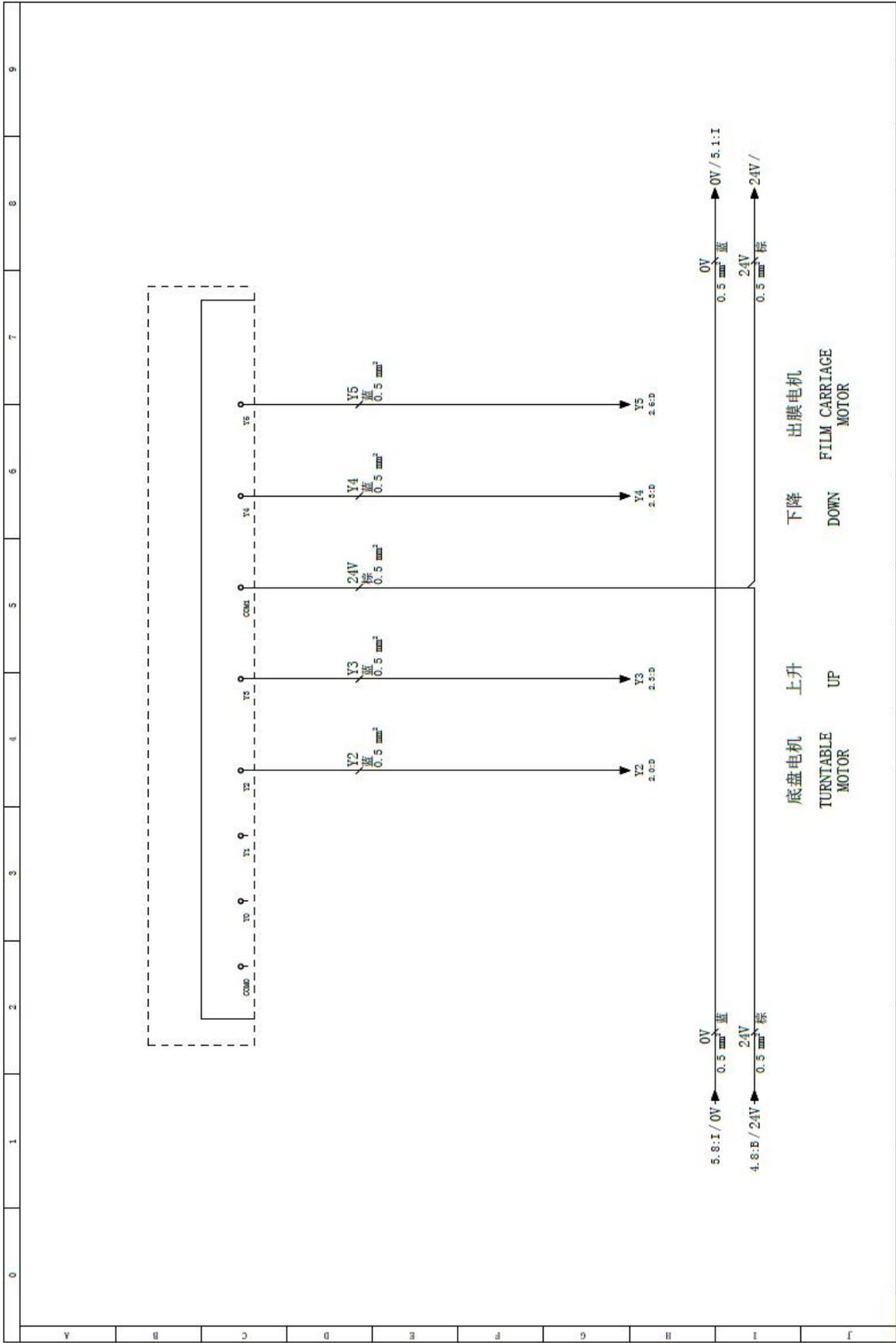
小黄蜂科技
苏州市相城区阳澄湖24号
TEL: 0512-97517980
EMAIL: xw@smartwasp.cn

XO-PRS

设计
校对
审核
日期
2020/1/7
申磊杰

PLC输入

| | | | |
|----|---|----|-------|
| 数量 | 1 | 单位 | 套 |
| 图号 | | 页码 | 4 / 6 |

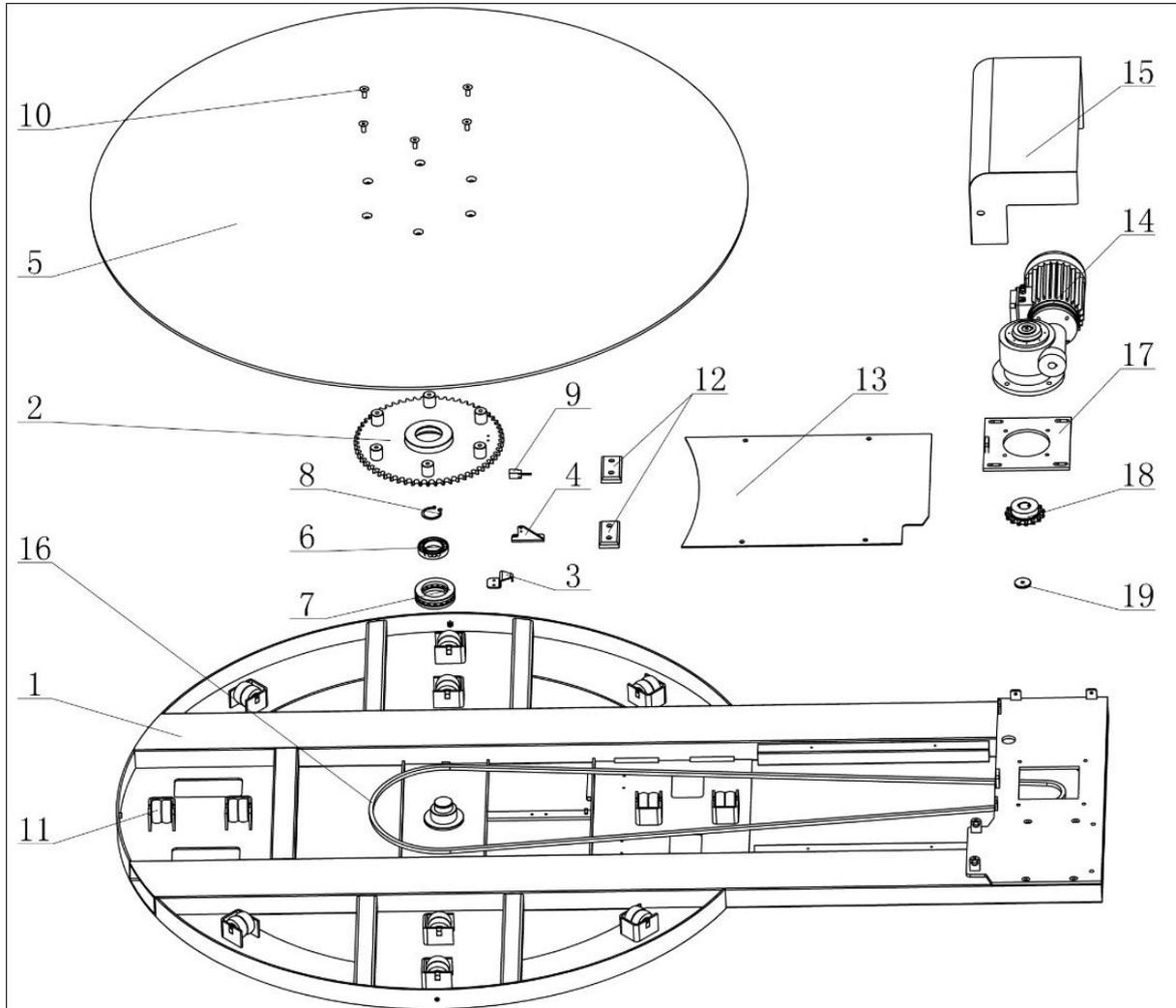


| | | | | | | | | |
|--|---|----|----|----------|----|----|----|-------|
| | 小黄峰科技 苏州市相城区阳澄湖街道 TEL: 0512-87517880 Email: rorine@smartwasp.cn | 设计 | 审核 | PLC输出 | | 数量 | 单位 | 价 |
| | | 校对 | 日期 | 2020/1/7 | 图号 | 1 | 册 | 8 / 8 |

8.2 Exploded view and detailed list

8.2.1 Turntable exploded view and detailed list

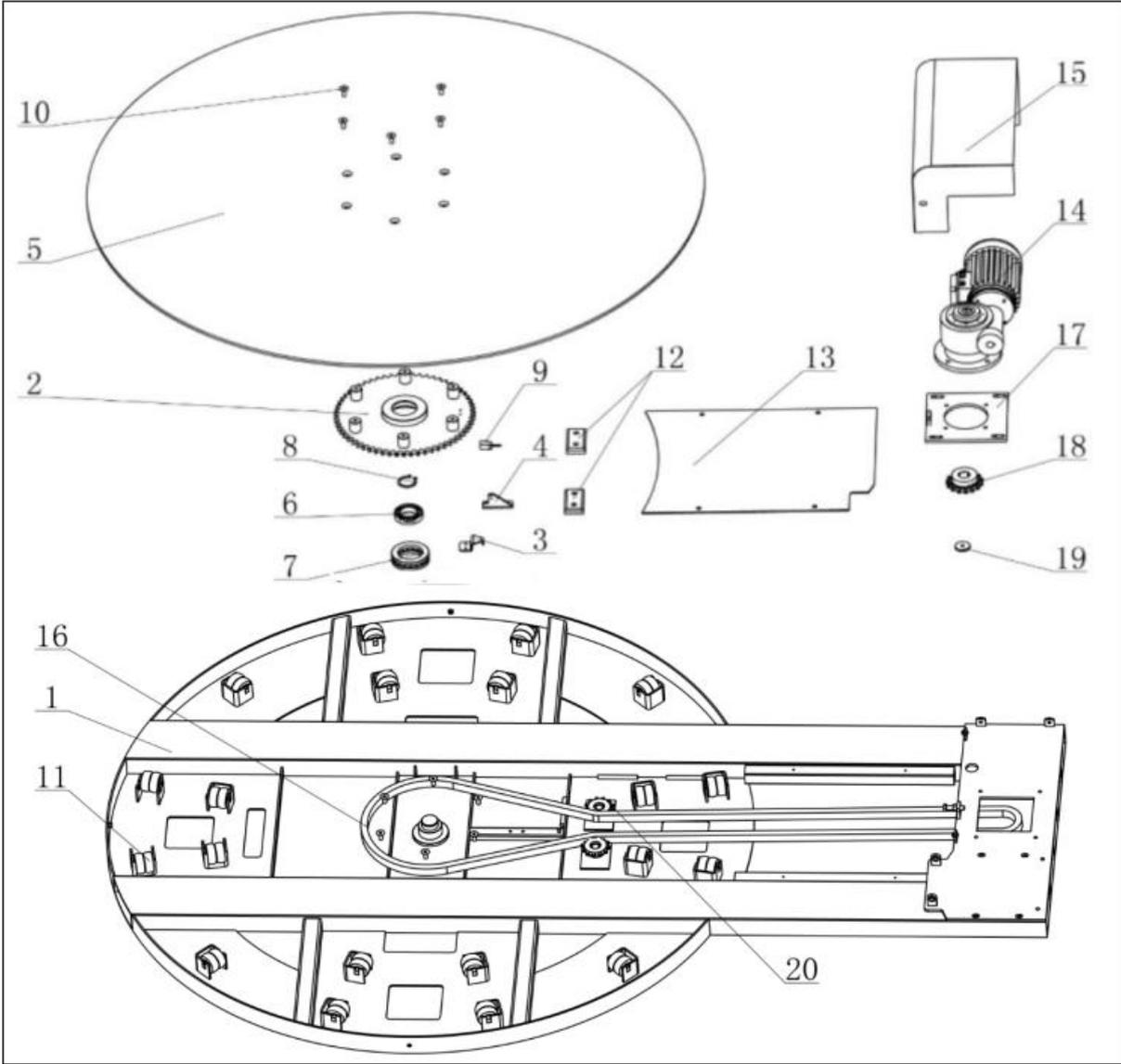
8.2.1.1 The following figure is a breakdown of the 1650mm chassis:



| Serial number | Workpiece number | Artifact name | Quantity |
|---------------|------------------|---|----------|
| 1 | 9XXDA000330 | 1650 Simple Round Turntable Welding Parts | 1 |
| 2 | 9XXDA000014 | Turntable sprocket weldment | 1 |
| 3 | 9XXDA000006 | Bottom sensing block | 1 |
| 4 | 9XXDA000051 | Proximity switch mounting plate | 1 |
| 5 | 9XXDA000332 | 1650 Turntable | 1 |
| 6 | JZCSG000015 | Deep groove ball bearing 6009 | 1 |

| | | | |
|----|-----------------|--|----|
| 7 | JZCTL000001 | Thrust ball bearings 51213 | 1 |
| 8 | JDQZY000001 | Shaft retaining ring $\Phi 45 \times 1.5$ | 1 |
| 9 | DKGJJ000001 | Proximity switch (normally open) | 1 |
| 10 | JJGLD000168 | Hexagon socket countersunk head screws M10X25 | 5 |
| 11 | 9XXDA000073 | Turntable roller assembly | 12 |
| 12 | 9XXDG00020 2 | Pallet | 2 |
| 13 | 9XXDG00020 1 | Chain cover | 1 |
| 14 | JJSWG00000 8 | Simple Turntable reducer | 1 |
| 15 | 9XXDG00019 7 | Motor housing welding parts | 1 |
| 16 | 9XXDA000342 | Turntable chain | 1 |
| 17 | 9XXDG00015 3 | Motor mounting plate | 1 |
| 18 | 9XXDA000009 | Turntable active sprocket | 1 |
| 19 | 9XXDA000008 | Gland | 1 |

8.2.1.2 The following figure is the decomposition of the 1800mm chassis:

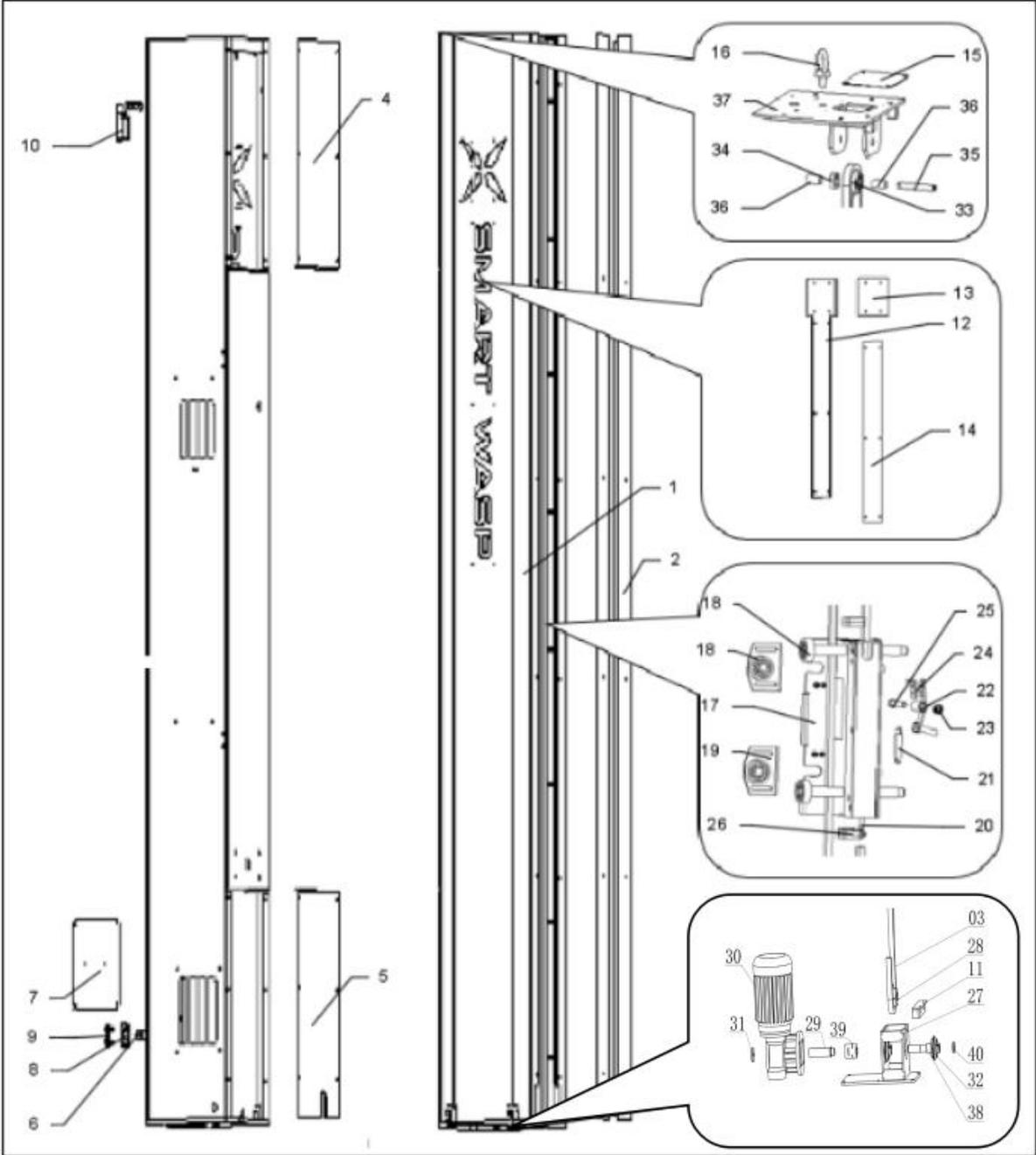


| Serial number | Workpiece number | Artifact name | Quantity |
|---------------|------------------|---|----------|
| 1 | 9XXDA000330 | 1650 Simple Round Turntable Welding Parts | 1 |

| | | | |
|----|-------------|---|----|
| 2 | 9XXDA000014 | Turntable sprocket weldment | 1 |
| 3 | 9XXDA000006 | Bottom sensing block | 1 |
| 4 | 9XXDA000051 | Proximity switch mounting plate | 1 |
| 5 | 9XXDA000332 | 1650 Turntable | 1 |
| 6 | JZCSG000015 | Deep groove ball bearing 6009 | 1 |
| 7 | JZCTL000001 | Thrust ball bearings 51213 | 1 |
| 8 | JDQZY000001 | Shaft retaining ring $\Phi 45 \times 1.5$ | 1 |
| 9 | DKGJJ000001 | Proximity switch (normally open) | 1 |
| 10 | JJGLD000168 | Hexagon socket countersunk head screws M10X25 | 5 |
| 11 | 9XXDA000073 | Turntable roller assembly | 12 |
| 12 | 9XXDG000202 | Pallet | 2 |
| 13 | 9XXDG000201 | Chain cover | 1 |
| 14 | JJSWG000008 | Simple Turntable reducer | 1 |
| 15 | 9XXDG000197 | Motor housing welding parts | 1 |
| 16 | 9XXDA000342 | Turntable chain | 1 |
| 17 | 9XXDG000153 | Motor mounting plate | 1 |
| 18 | 9XXDA000009 | Turntable active sprocket | 1 |
| 19 | 9XXDA000008 | Gland | 1 |
| 20 | 9XXDA000010 | Guide sprocket | 2 |

8.2.2 Exploded view and detail list

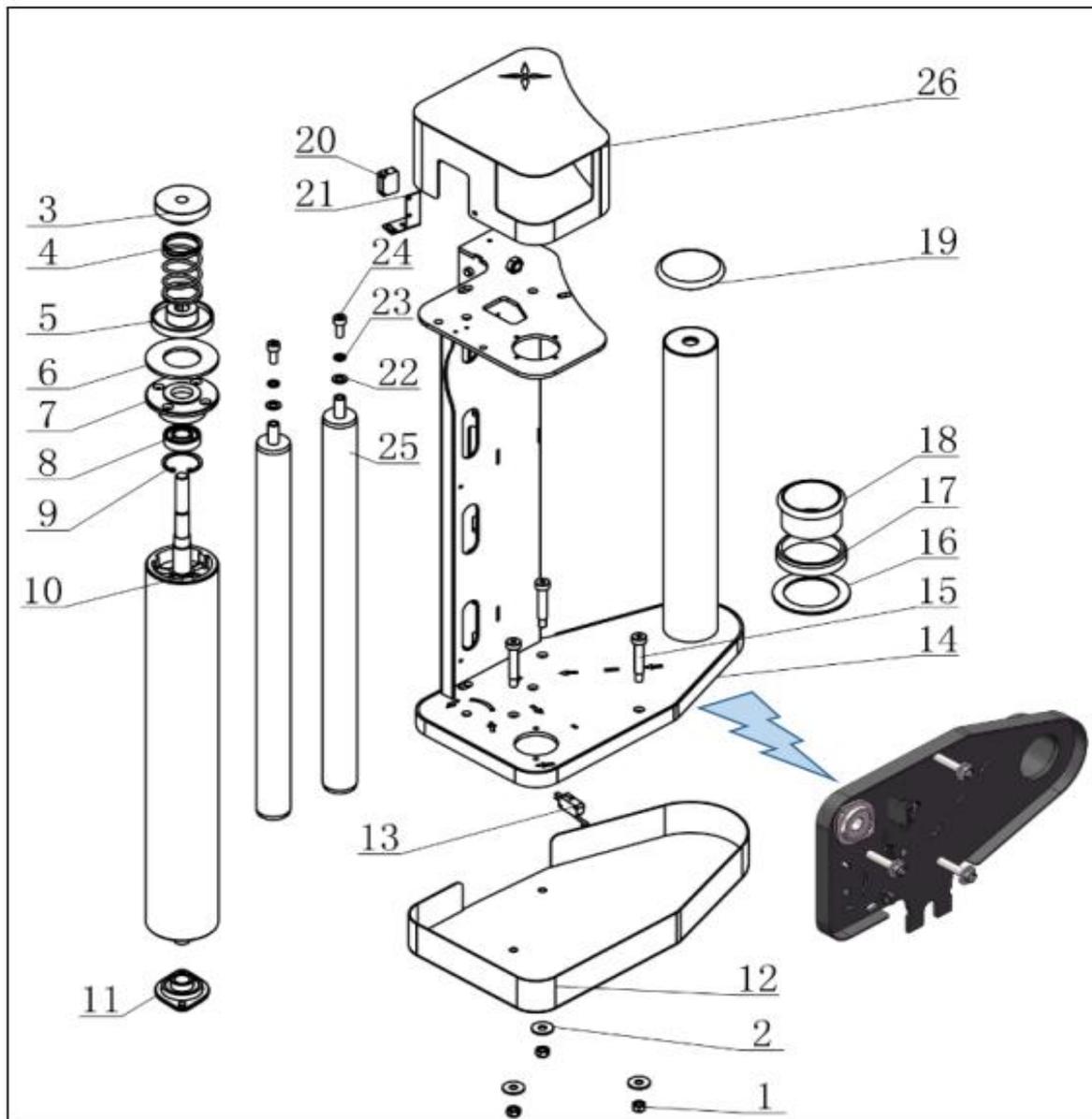
Exploded view of post assembly



| Serial number | Workpiece number | Artifact name | Quantity |
|---------------|------------------|---|----------|
| 1 | 9XXLM000401 | Welding posts | 1 |
| 2 | 9XXLM000355 | Membrane Block Baffle | 2 |
| 3 | 9XXDA000343 | tower chain | 1 |
| 4 | 9XXLM000193 | Upper cover | 1 |
| 5 | 9XXLM000283 | Lower cover | 1 |
| 6 | DKGJJ000001 | Proximity switch (normally open) | 1 |
| 7 | 9XXLM000356 | Rear cover | 1 |
| 8 | 9XXLM000221 | Photoelectric switch moving board | 1 |
| 9 | 9XXLM000331 | Photoelectric switch fixing plate welding parts | 1 |
| 10 | DKGXZ000001 | Limit switch | 1 |
| 11 | 9XXLM000387 | Motor limit plate | 1 |
| 12 | 9XXLM000405 | Light box | 1 |
| 13 | 9XXLM000425 | Light guide 1 | 1 |
| 14 | 9XXLM000426 | Light guide 2 | 1 |
| 15 | 9XXLM000412 | Driven wheel upper cover | 1 |
| 16 | 9XXDA000344 | M16 rings | 1 |
| 17 | 9XXLM000358 | Trolley welding parts | 1 |
| 18 | JQTQT000160 | Rubber-coated bearing pulley (17 × 50 × 18) | 8 |
| 19 | 9XXLM000366 | Guide wheel mounting plate | 2 |
| 20 | JJGLS000304 | Joint bolt M10 × 40 | 1 |
| 21 | JTHLX000021 | Extension spring | 1 |
| 22 | 9XXLM000368 | Film carriage protection mechanism | 1 |
| 23 | JJGLM000020 | Lock nut M10 | 2 |
| 24 | 9XXLM000052 | Chain platen | 1 |
| 25 | 9XXDA000345 | Half tooth bolt M10 | 1 |
| 26 | 9XXLM000371 | Cushion board | 2 |

| | | | |
|----|-------------|-----------------------------------|---|
| 27 | 9XXLM000373 | Power frame | 1 |
| 28 | 9XXLM000263 | Lifting main sprocket | 1 |
| 29 | 9XXLD000068 | Lifting spindle | 1 |
| 30 | JJSWG000009 | Lifting trolley motor | 1 |
| 31 | 9XXDA000008 | Gland | 1 |
| 32 | JZCDZ000001 | Block bearing SBPFL204 | 1 |
| 33 | 9XXLM000065 | Lifting from sprocket | 1 |
| 34 | JZCSG000013 | Deep groove ball bearings 6202 | 1 |
| 35 | 9XXLM000232 | Driven wheel | 1 |
| 36 | 9XXLM000192 | Driven wheel bushing | 2 |
| 37 | 9XXLM000407 | Roof welding | 1 |
| 38 | 9XXLM000725 | Lifting spindle | 1 |
| 39 | 300200250 | Steel coupling (G404020J6) | 1 |

8.2.3 Exploded view and detailed list of the Film carriage



| Serial number | Workpiece number | Artifact name | Quantity |
|---------------|------------------|--|----------|
| 1 | JJGLM000023 | Lock nut M8 | 3 |
| 2 | JJGPD000030 | Large washer M8×2 | 3 |
| 3 | 9XXSN000145 | Knob | 1 |
| 4 | 9XXSN000182 | Resistance pull compression spring ($\phi 3.5 \times 43 \times 70$) | 1 |
| 5 | 9XXSN000146 | Brake disc | 1 |
| 6 | 9XXSN000147 | White nylon friction plate | 1 |
| 7 | 9XXSN000148 | Angular contact bearing seat (fixed | 1 |

| | | | |
|----|-------------|---|---|
| | | friction plate) | |
| 8 | JZCJJ000011 | BBP7203 (Single row angular contact ball bearing) | 1 |
| 9 | | Retaining ring for hole D40 | 1 |
| 10 | 9XXSN000142 | Drag roller assembly | 1 |
| 11 | 9XXSN000092 | Bearing with seat ϕ 17 | 1 |
| 12 | 9XXSN000170 | Welding parts of the bottom cover | 1 |
| 13 | DKGWD000001 | Micro Switch | 1 |
| 14 | 9XXSN000166 | Membrane holder | 1 |
| 15 | 9XXSN000141 | Contour screw M8 (D10-L45) | 3 |
| 16 | 9XXSA000055 | Film roll bottom gasket | 1 |
| 17 | 9XXSN000062 | Nylon sleeve | 1 |
| 18 | 9XXSA000056 | Fixed sleeve under film roll | 1 |
| 19 | 9XXSA000057 | Film roll column top fixing piece | 1 |
| 20 | LH00114 | Photoelectric switch | 1 |
| 21 | 9XXLM000429 | Photoelectric switch bracket | 1 |
| 22 | JJGPD000003 | Flat washer M8X1.6 | 2 |
| 23 | JJGTD000005 | Elastic washer M8X2.1 | 2 |
| 24 | JJGLD000261 | Hexagon socket head screw M8X20 | 2 |
| 25 | 9XXSN000059 | Unpowered roller | 2 |
| 26 | 9XXSN000173 | Welding parts of resistance film seat cover | 1 |

8.3 Wearing parts

| Serial number | Artifact name | Workpiece number | model | Brand | Quantity |
|---------------|---------------|------------------|--------------|-------|----------|
| 1 | Limit switch | DKGXZ000 001 | D4V-8108SZ-N | OMRON | 2 |

| | | | | | |
|---|----------------------------------|-----------------|-----------------------|------------|--------------|
| 2 | Proximity switch (normally open) | DKGJJ0000 01 | IQE17-05NNSK W2S | SICK | 3 |
| 3 | Bearing Nylon | 9XXDI0000 73 | With bearing 6202 | smart wasp | 19 groups |
| 4 | Conversion belt | 9XXAA0000 80 | B18.5-t2-L1660 | smart wasp | 1 |
| 5 | Stop spring | 9XXAA0000 86 | Wire diameter φ1 | smart wasp | 1 |
| 6 | Conversion spring | 9XXAA0001 11 | Wire diameter φ1.8 | smart wasp | 1 |
| 7 | Film roll bottom gasket | 9XXSA0000 55 | Outsourcing | smart wasp | 1 |
| 8 | Film under the fixed sleeve | 9XXSA0000 56 | Outsourcing | smart wasp | 1 |