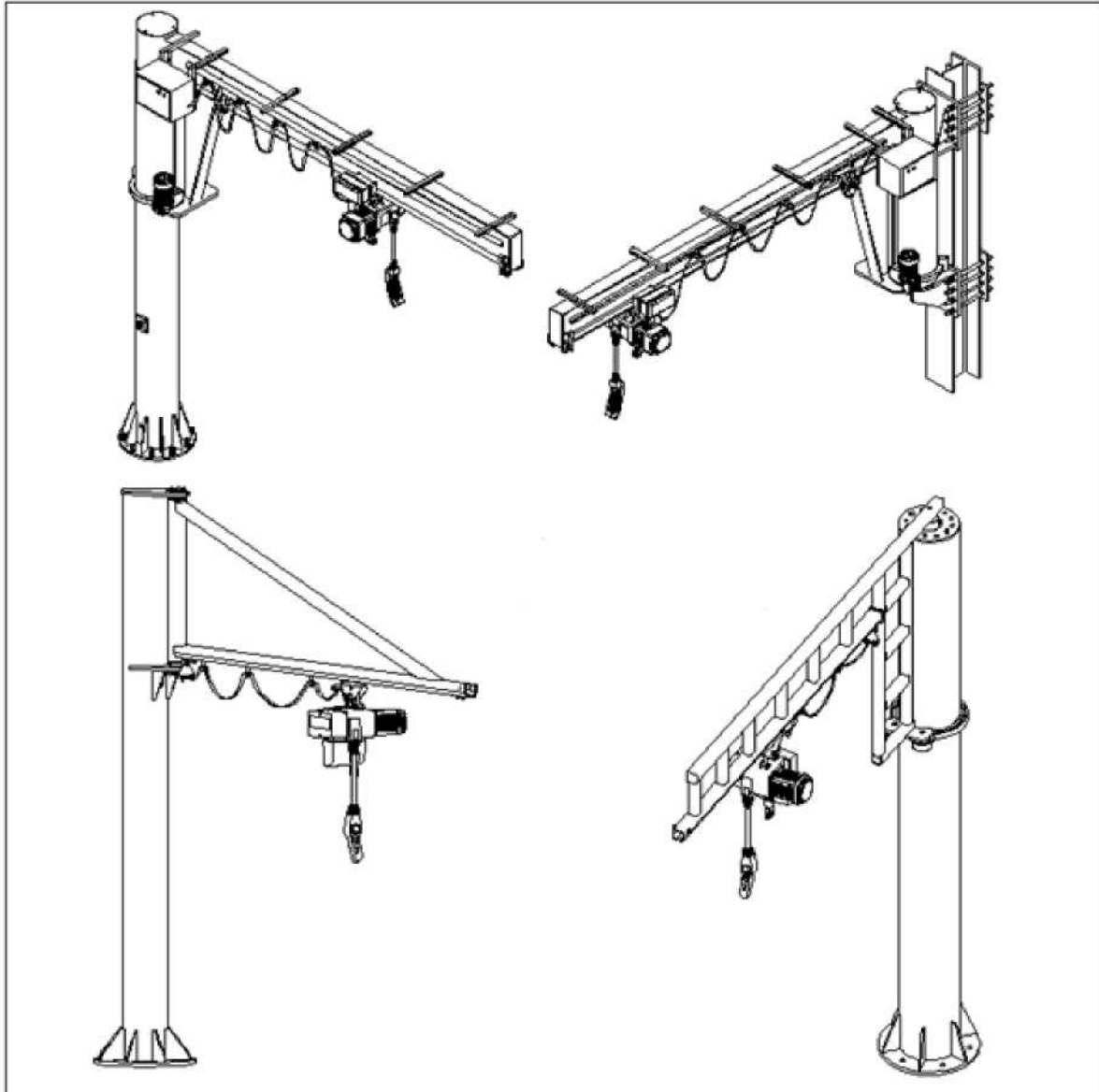


JIB CRANE



User Manual

(Wall type Cloumn type and walking type)

ALEKcrane

User manual for jib crane

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I.

!!! Safety First

Operation of any type of crane may present a potential risk and may result in loss of personnel or property.

If the operator does not follow the correct operation and precautions, the probability of harm will increase significantly.

Therefore, before you start using our products, every operator should be fully familiar with all the instructions and precautions in the manual to ensure safe operation.

II. Introduction

1. First of all, thank you for choosing our products for your material handling solutions.

The cantilever crane produced by Alekcrane is rigorously calculated and scientifically designed. With lightweight structure and perfect quality, we can bring you more long-term use. Following this installation, use and maintenance procedures, we will provide you with more convenient and reliable services.

2. Prior notice

- 1) . The dimensions included in this manual are for reference only. These dimensions may vary for your specific application. Please refer to the attached assembly drawing for the actual installation and dimensions.
- 2) . Reinforced concrete floors need to be with a thickness of at least 220 mm and a strength class greater than or equal to C25, and there should be no defects such as cracks and cracks within the range of 1.5 M around the column . We are not responsible for the installation surface.
- 3) . Our products are not designed for manned persons and cannot be used to lift, support or transport personnel. Failure to comply with any of the restrictions specified in this manual may result in serious personal injury or property damage.
- 4) . Do not use our products as grounding devices. We require a separate grounding wire. For example, a system with a three-phase power supply requires three wires and one ground wire.
- 5) .All bolts should be tightened according to the design torque (Figure 2-2-1), and use a torque wrench, Alekcrane will not be responsible for structural connection not complying with the manual regulation or installation not meeting the torque requirements.

Bolt torque table

NO.	Specification	Torque (N , m)
1	M10	30
2	M12	65
3	M16	130
4	M20	204:
5	M24	435

Figure 2-2-1

3. Routine inspection: (The following are necessary check, but are not limited to the following checks)

- 1) . Checking whether the cantilever is obstructed during rotation.
- 2) . Checking whether the fastening bolts are tightened and fitted with spring washers.
- 3) . Checking whether the terminal buffer stop is installed or loosen.
- 4) . Checking whether the suspension part is blocked.

4. Important Notice;

- 1) . The warranty for this product will be void if any changes to our products are made without our written consent.
- 2) . We will not be responsible for any property damage or personal injury caused by failure to operate strictly accordant with this manual.

III. Product Safety Instructions

1. **Be Familiar with your crane:**

Crane operators should be familiar with the main components of the crane and have a comprehensive knowledge of crane control and movement. The crane operator should be required to know the location of the crane* s main supply conductors and the connections to the various accessories and proper power-off operations.

2. **Responsibility:**

Each crane operator should be direct responsible for the safe operation of the crane.

When there is doubt about the safety issue, the crane operator should immediately stop the crane operation. Reject operate the crane before the following work:

- 1) . Ensuring Safety.
- 2) . The operator can operate crane after receiving the command of supervisor. The supervisor assumes full responsibility for the safety of the equipment. Never allow anyone to sit on a hook or sling.

3. **Check:**

Before the start of each work, the attachment activities of cranes and cranes should be tested. When finds any malfunction or obvious problem, the operator should immediately report the problem to the relevant supervisor and take appropriate corrective action.

4. **Operational suggestions:**

The smooth running of cranes is the basic standard for measuring the quality of crane operators, good crane operators should understand and follow these safe and effective crane operation recommendations.

- 1) . The crane should be moved smoothly and slowly to avoid violent and sudden lifting movements.

Before lifting the goods, remove the slack from the sling and hook.

- 2) . Before the hoist is started, in order to avoid the swing of the hoist at the start of lifting, the crane should be placed above the goods. Swinging the cargo to the areas outside of the crane is not allowed.
- 3) . The crane rope should be kept vertical and do not use a crane for diagonal pull goods.

- 4) . When the lifting material is moving, all personnel in the nearby area should maintain a certain safety distance from the lifting materials.
- 5) . Don' t lift goods which are exceeding the rated loaded capacity of cranes, chains, ropes, etc.
- 6) . Be sure the spreader is locked in the hook before moving the hoist. (Unless equipped with a safety guard).
- 7) . Be sure to raise the material or jib to a height enough high to avoid all obstacles when moving the jib jib or hoist trolley.
- 8) . Under any condition, The material can not be suspended under any condition unless the operator controls the power switch button and keep it power on . n this suspended position, the hoisting should be as close as possible to the ground. Because once the hoist is dropped, the possibility of injury is minimized. When the hoist is held on the crane, the crane operator should keep next to the switch button.
- 9) . When the slings is loose, do not lift the cargo. If all the slings are no longer needed, it should be properly stored. Or use a different slings.
- 10) . When not using slings, all slings should be removed from the crane hook. (Slings suspended on hooks may block other items when the crane moves)
- 11) . The operator should not transport the cargo above the person. Take extra care when using magnets or vacuum equipment. The hoisting materials or part of the cargo may fall. When the power of the magnet or vacuum equipment fails, it will cause the hoisting materials fall. Therefore, when personnel transfer molten metal, there should be additional precautions nearby.
- 12) . When the operator leaves the crane, the following steps should be followed:
 - a. Should move all hooks to the middle position.
 - b. Should put the crane in an approved designated location.
 - c. Be sure all control devices are "off".
 - d. Switch the main switch to the "off" position.
 - e. Visual inspection is needed before leaving the crane.
- 13) . In the event of an emergency, or during inspection, repair, cleaning or lubrication, a warning sign or signal should be placed. Also, the main switch should be locked in the

"off" position. Whether the work is being carried out by a crane operator or by someone else, it should be done.

- 14) . Special care should be taken when replacing the brakes and the hoist trolley terminal buffer. In order to ensure the safety of the personnel under the crane, the operator should pay special attention. And be sure to let all the people on other cranes know what you are doing before do the relevant work.
- 15) . All safety equipment, mechanisms and other equipment installed in the crane provided by Alekcrane are necessary for the safe operation of the crane. In any case, do not disassemble the cranes provided by our company, weaken or abolish any safety equipment, mechanisms and other devices installed in our cranes. Otherwise, the function of any safety equipment, mechanism or other device may be damaged or the safe operation of the crane is not applicable. Any disassembling and damage to any safety equipment and device will affect its use or operation. Once these safety equipment and equipment are lost, All warranty will automatically expire.

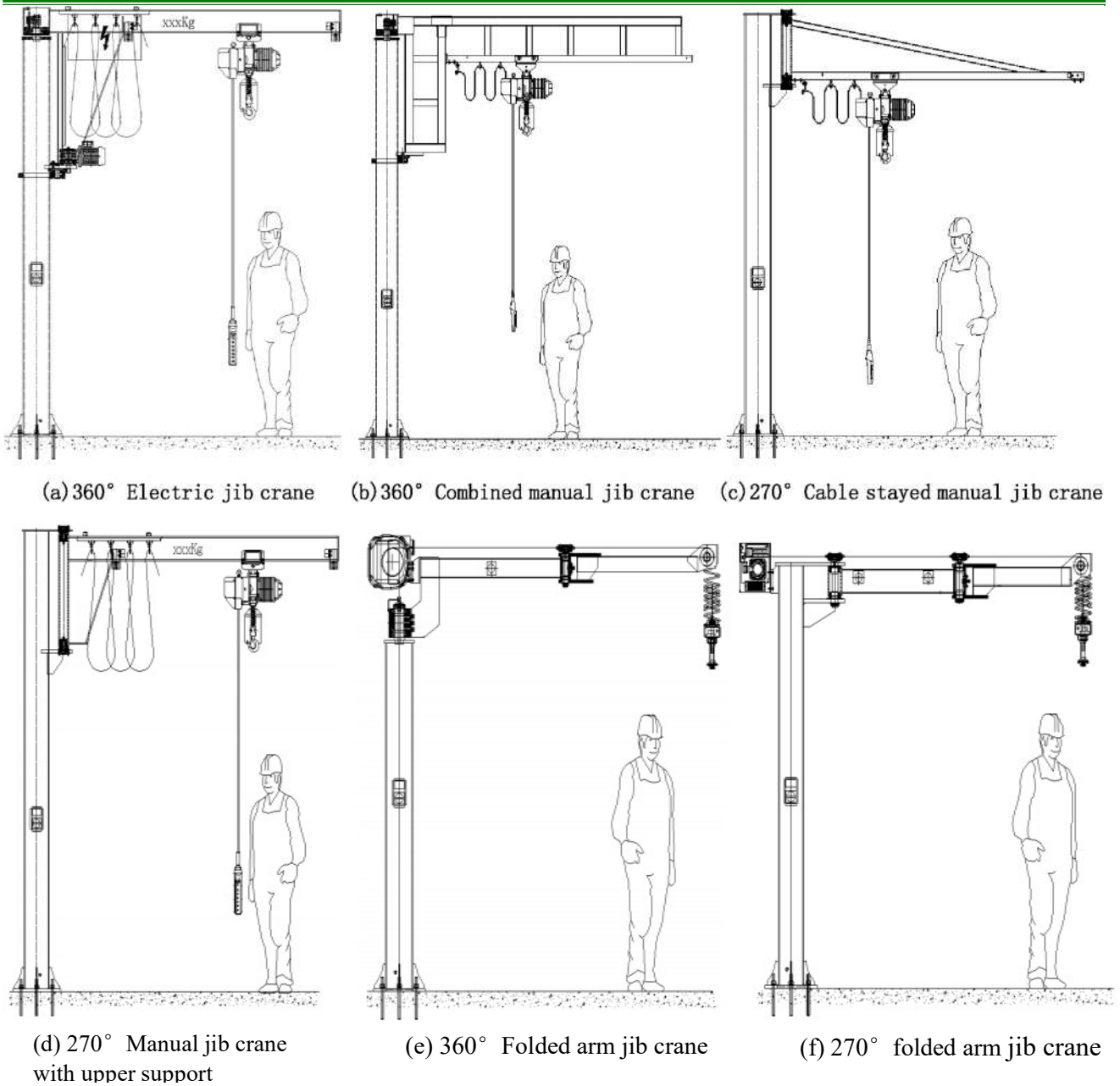
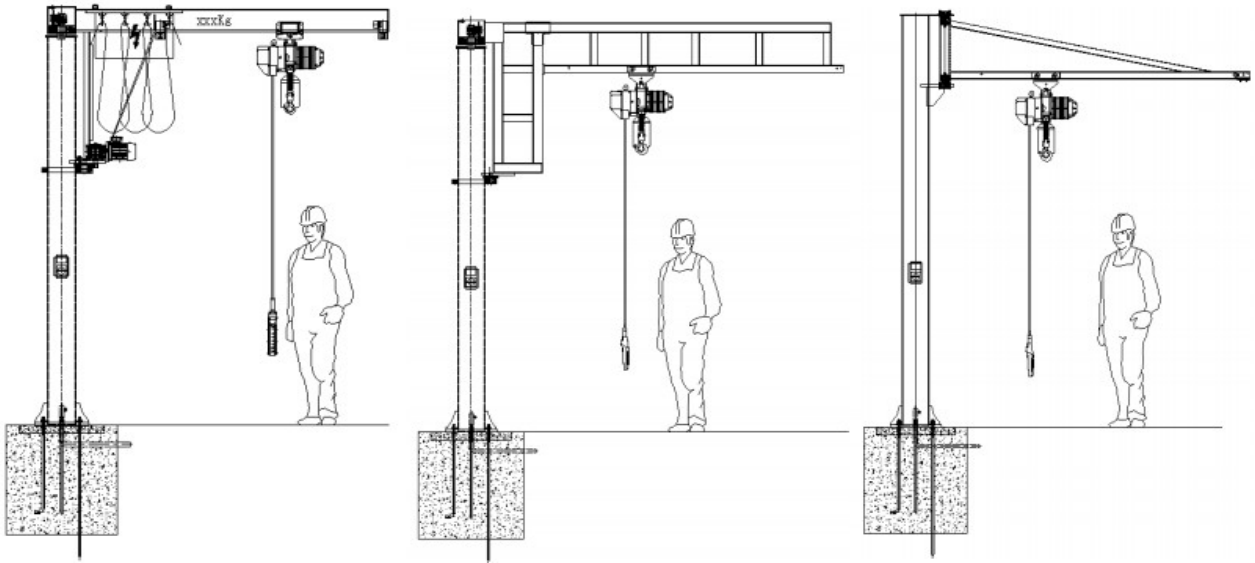
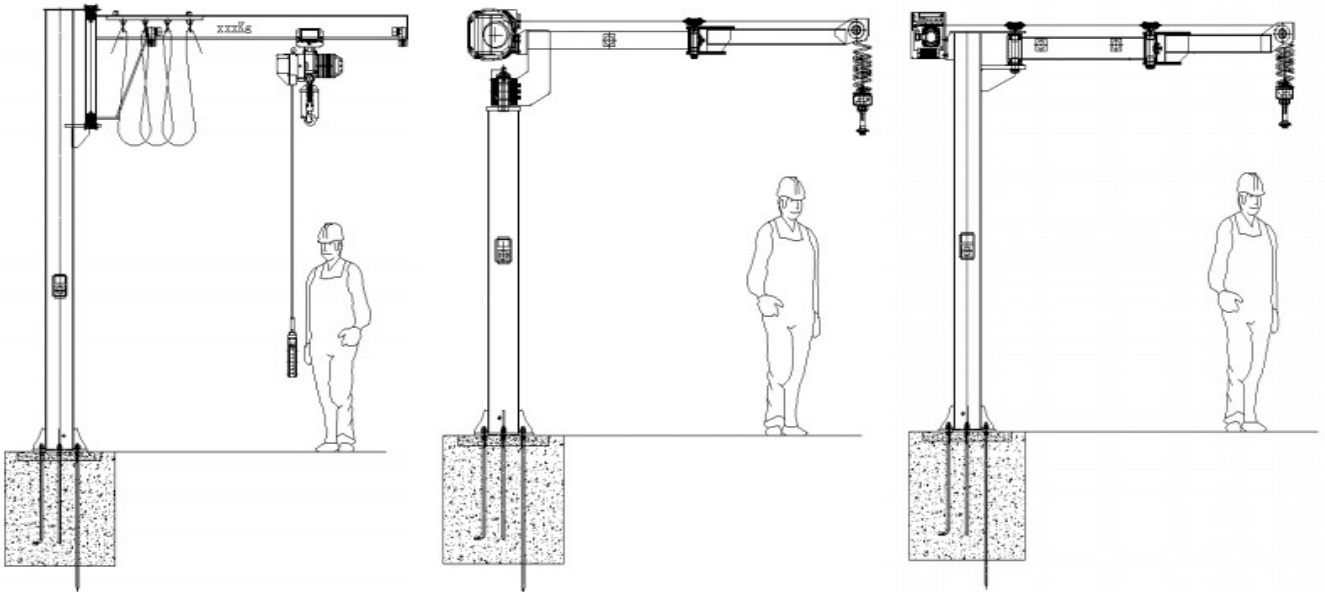


Figure 4-1 Alekcrane Fixed-column jib crane used with chemical bolts



(a) 360° electric jib crane (b) 360° combined manual jib crane (c) 270° diagonal pull manual jib crane

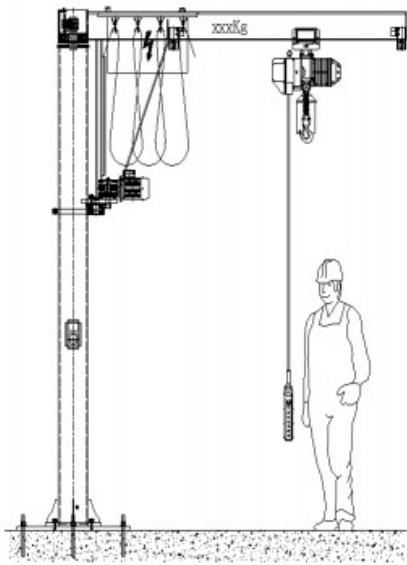


(d) 270° upper support manual jib crane

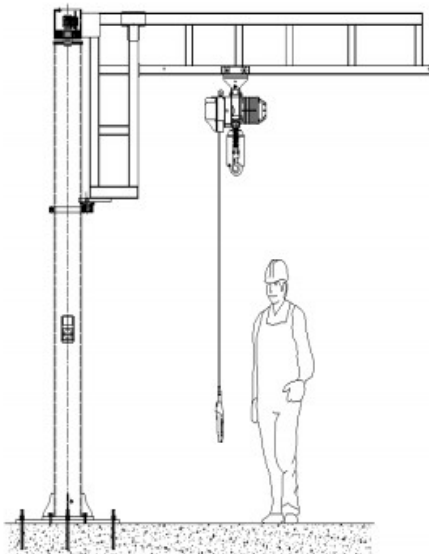
(e) 360° folded arm jib crane

(f) 270° folded arm jib crane

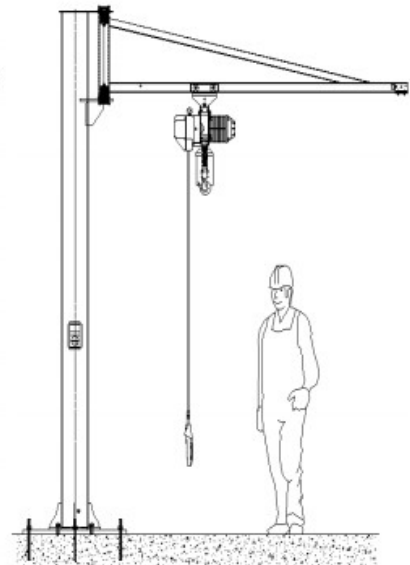
Figure 4-2 Alekcrane Fixed-column jib crane with embedded structure



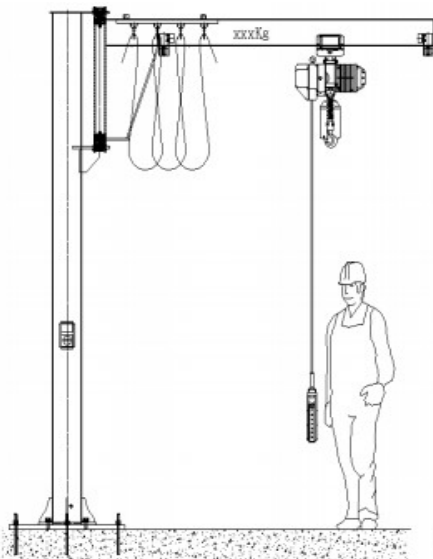
(a) 360° Electric jib crane



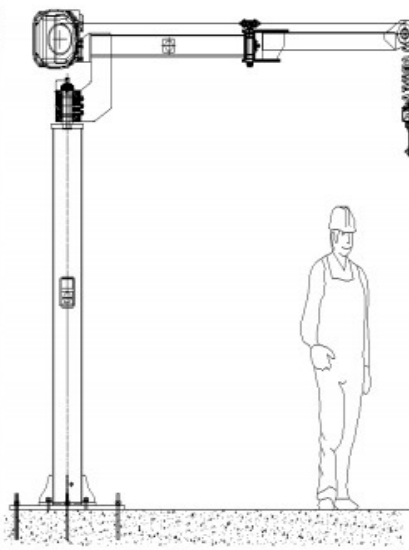
(b) Combined manual jib crane



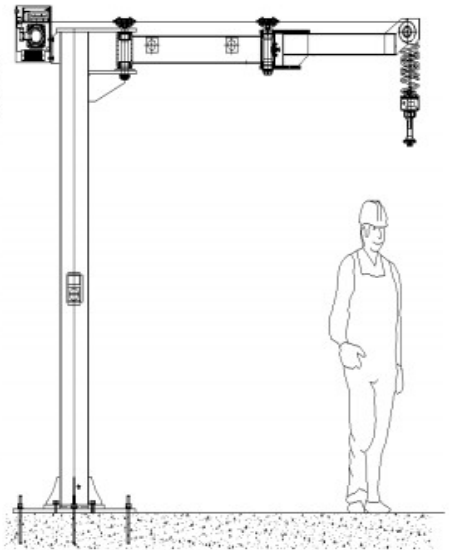
(c) 270° diagonal pull manual jib crane



(d) 270° Upper support manual jib crane

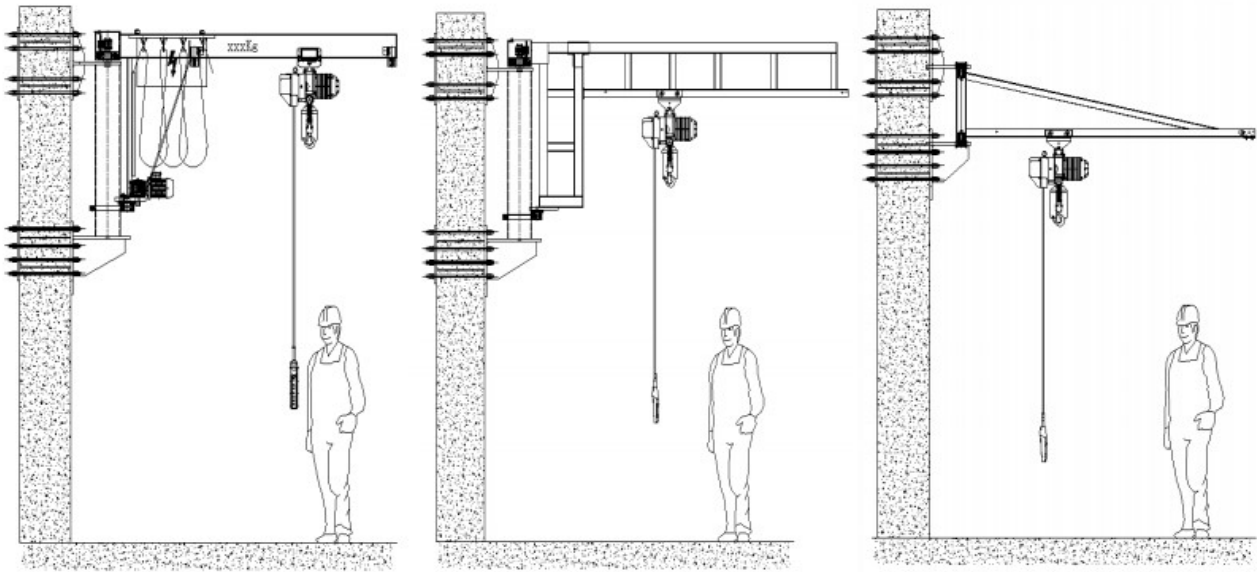


(e) 360° Folded arm jib crane



(f) 270° Folded arm jib crane

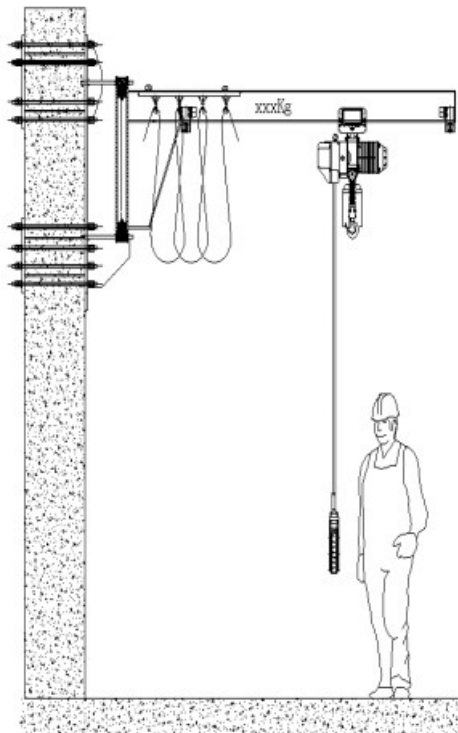
Figure 4-3 Alekcrane Big plate structure fixed column crane



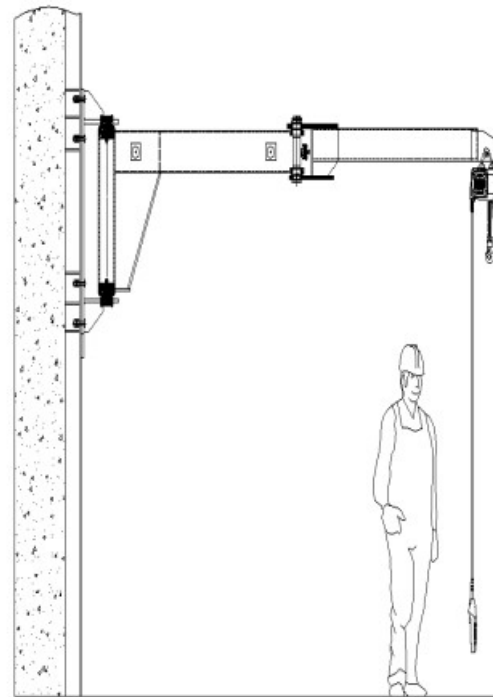
(a) 180° electric jib crane

(b) 180° combined manual jib crane

(c) 180° manual jib crane

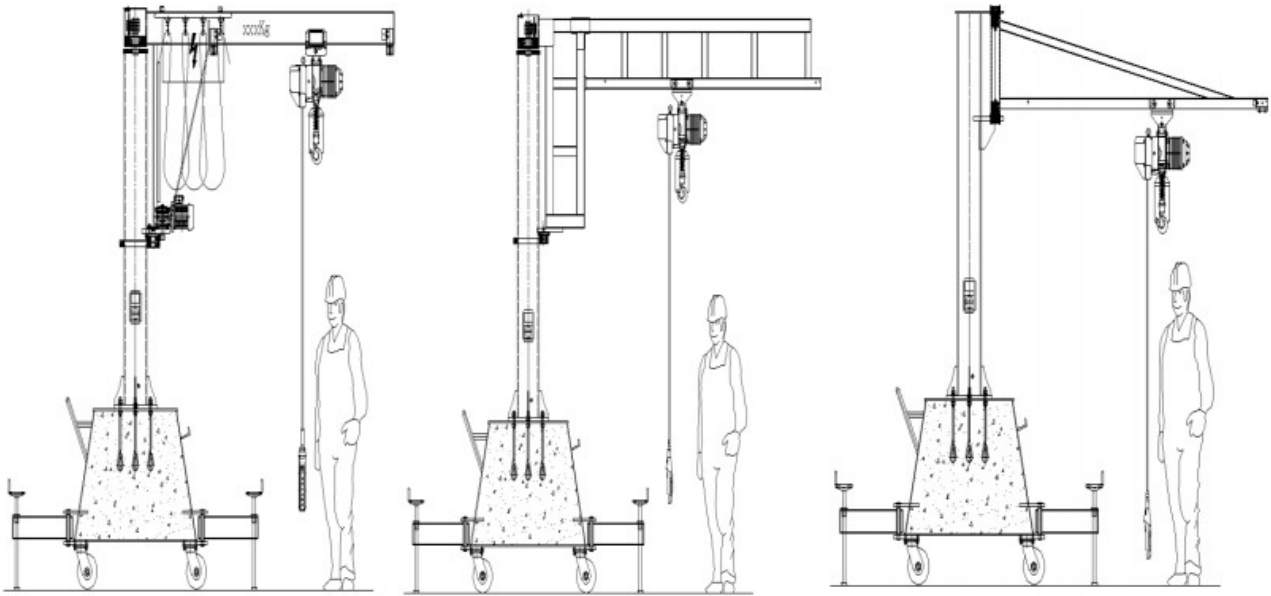


(d) 180° upper support manual jib crane

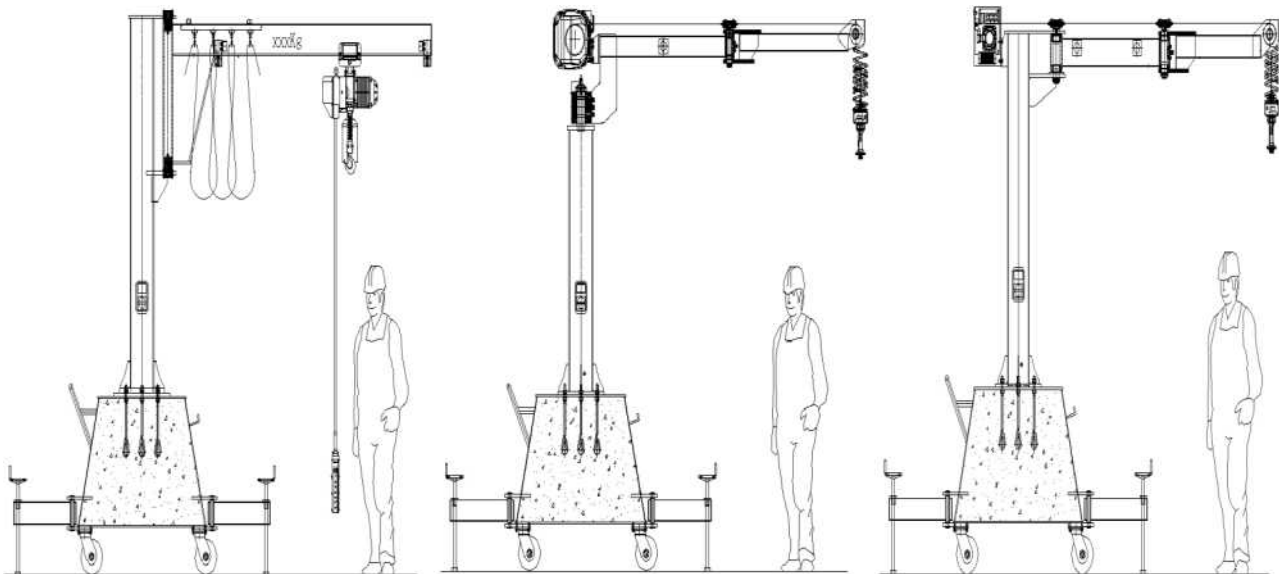


(e) 180° folded arm jib crane

Figure 4-4 Alekcrane Wall-mounted jib crane



(a) 360° electric jib crane (b) 360° combined manual jib crane (c) 270° diagonal pull manual jib crane



(d) 270° upper support manual jib crane (e) 360° folded jib crane (f) 270° folded jib crane

Figure 4-5 Alekcrane Mobile jib crane

V. Install the column / install the wall support structure

1. embed anchor bolts according to the drawings (Figure 5-1)
 - a. The size of the foundation pit should be strictly in accordance with the requirements of our drawings.
 - b. The anchor bolt specifications should be strictly comply with our drawings.
 - c. The anchor bolts are buried in the ground depth of at least 3/4 of the foundation thickness.
 - d. The anchor bolts are at least 100 mm above the ground.

2. Ground requirements:

The requirements of the jib crane for the foundation are: the concrete strength rating is not less than C25.

The concrete foundation must be solidified 7 days before the crane is installed.

The concrete foundation must be solidified 30 days before the crane is fully loaded.

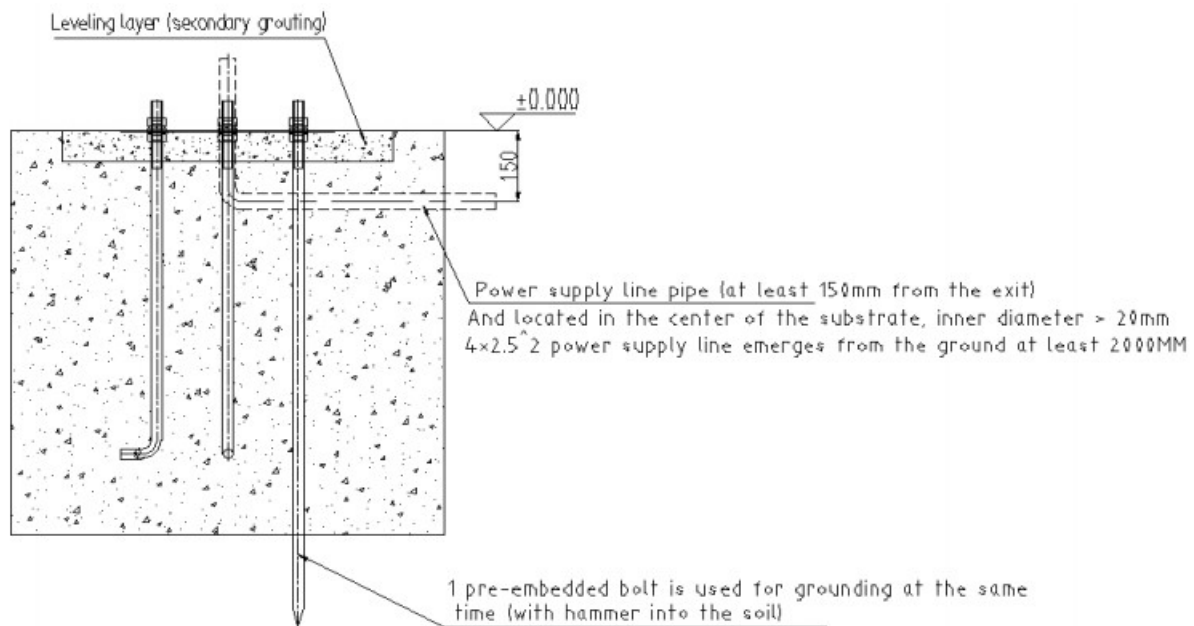


Figure 5-1 (embedded foundation)

3. Install chemical bolts:

For jib cranes that do not require an embedded foundation, the foundation requirements are:

- a. The capacity of reinforced concrete is 25Mpa, within 1.5M area around the column, no cracks or cracks.

- b. At least 220mm thick reinforced concrete floor is required.
 - c. Chemical bolt specifications should be strictly refer to our configuration requirements.
 - d. The chemical bolts shall be buried in the ground at least 170 MM and shall not exceed 3/4 of the thickness of the foundation.
 - e. After the bolt is completely tightened, at least 3 to 5 screws are left on the nut.
4. Install the big bottom plate
- a. Use the hole on the big bottom plate configured by Alekcrane as the guide (Figure 5-2), Drilling holes in concrete floors that meet the requirements (The choice of drilling size is based on the recommendations of the chemical bolt manufacturer)
 - b. Refer to the installation instructions and requirements of the chemical bolt manufacturer, Install the appropriate bolt.

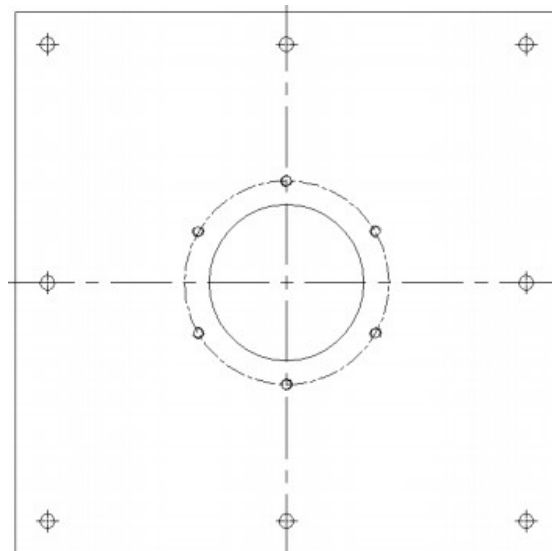


Figure 5-2 (big plate structure)

5. Install the column and measure its Verticality.
- a. Install the column in place according to location requirements.
 - b. Using fixture(self-provided)Or equivalent device (Figure 5-3-1) to lower the plumb bob from the top of the column.
 - c. At the 50mm below the top of the column, the intersection point with the plumb line from the surface of the column 75mm is set to point A. (Figure 5-3-2).

- d. Below point A (about the position where the roller is in contact with the column), Defined as point B, The distance between the plumb line and the surface of the column should also be 75 mm.
- e. When measuring the plumb line at two points A and B with a steel ruler, distance from the outer surface of the column, make sure the size is the same at both points.
- f. To ensure the verticality of the entire column, Surrounding column, At least every 60° , repeat steps c, d, e.
- g. When the column has been straightened, and the chemical has solidified, simply tighten the chemical bolts.

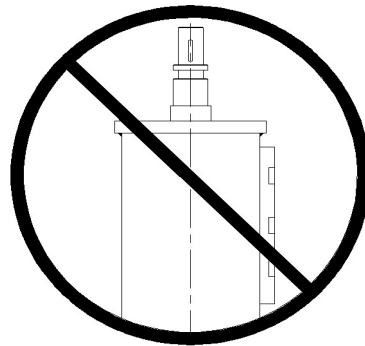


Figure 5-3-1

Never use a level to measure column verticality

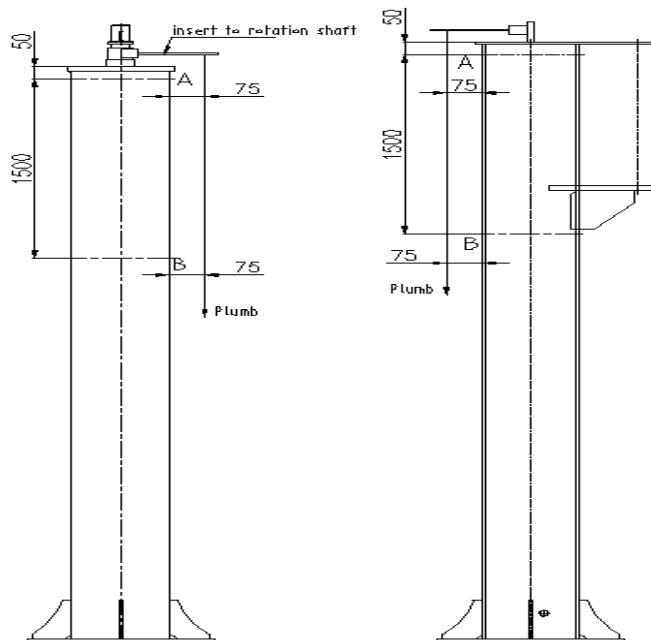


Figure 5-3-2

6. Install the wall support structure:

- a. Determine the installation location of the wall support structure.
- b. Take the mounting hole on the wall supporting structure as guiding hole and pre-fixed it with the corresponding bolt. Do not tighten the bolts until the jib has been installed.
- c. Adjust the upper and lower positions of the support structure with the steel gasket so that the upper and lower ear plates of the wall supporting structure are perpendicular to the installation plane.
- d. Jib installation (refer to the next step).

7. **Important Notice:**

- a. Before installing the column, please confirm whether the foundation meets the requirements. If it can not meet, do not install it.
- b. If your wall support structure does not meet the requirements for use, do not install it.
- c. Chemical bolts are used because the equipment generates vibration during use.
- d. To prevent the jib from leaning down, the column must be vertical.
- e. The verticality of the column cannot be observed with a level.
- f. When adjusting the verticality of the column, do not loosen the nuts of the anchor bolts.

VI. Mounting jib

1. The installation steps of the 360° electric jib crane and the 360° combined manual jib crane are as follows:
 - a. Check that the bearings in the boom swivel are installed and filled with grease.
 - b. Insert the jib swivel into the column rotation axis (Figure. 6-1-1).
 - c. Fix the card board.
 - d. Rotate the jib over the entire range of motion to ensure unobstructed rotation.

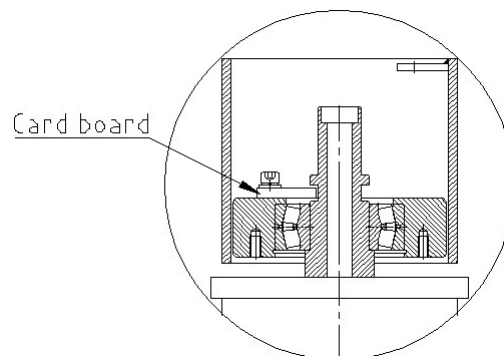


Figure 6-1-1

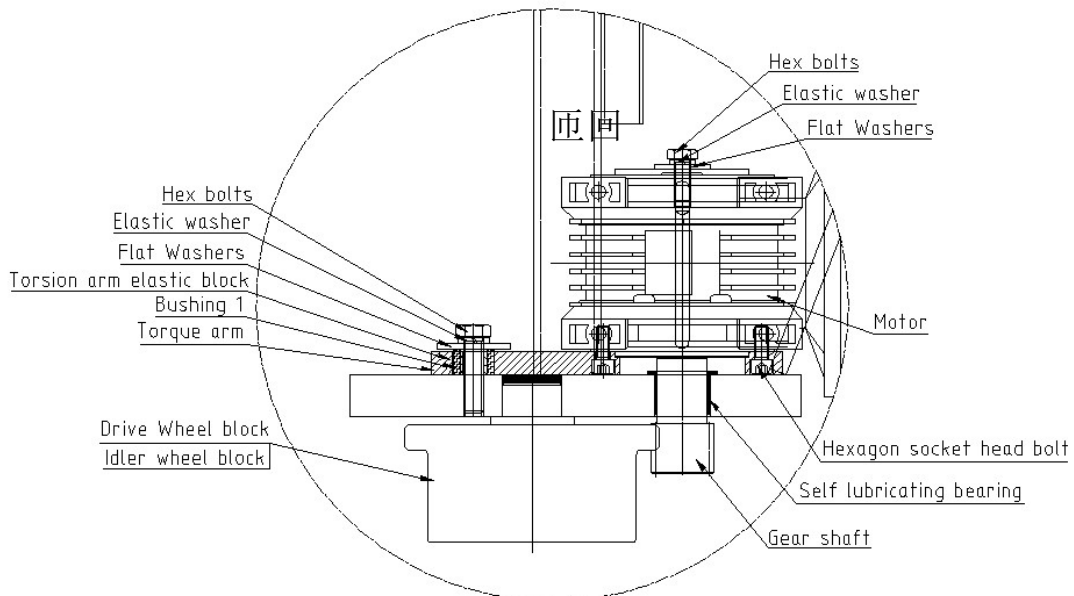


Figure 6-1-2

2. The installation steps of the 270° diagonal pull manual jib crane and the 270° upper support manual jib crane are as follows:

- a. Insert the upper and lower graphite bearings into the steel inserts of the upper and lower ear plates (Figure 6-2-1).
- b. Place the cantilever parallel into the upper and lower ear plates (Figure 6-2-2).
- c. Insert the upper and lower rotary shafts, spring washers and bolts into the swing mechanism in sequence (Figure 6-2-3).
- d. Rotate the cantilever over the entire range of motion to ensure unobstructed rotation, then the upper and lower bolts 2 can be fastened
- e. Use the bolt 1 fasten the dust cover of the up-and-down swing mechanism.

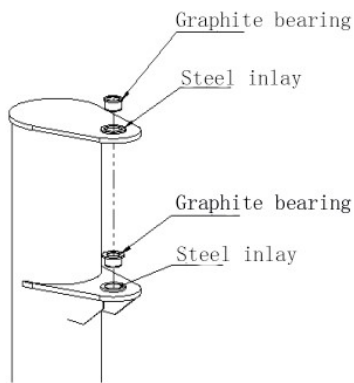


Figure 6-2-1

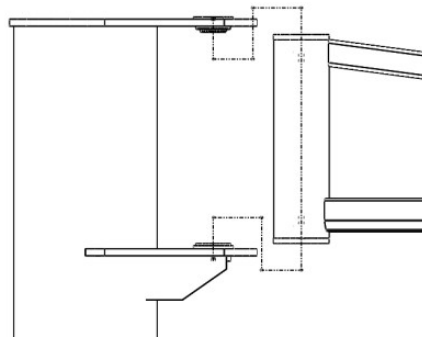


Figure 6-2-2

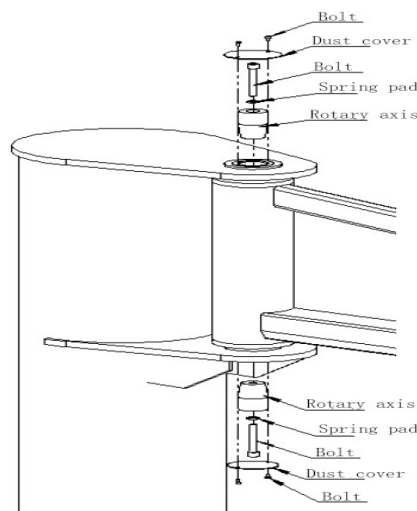
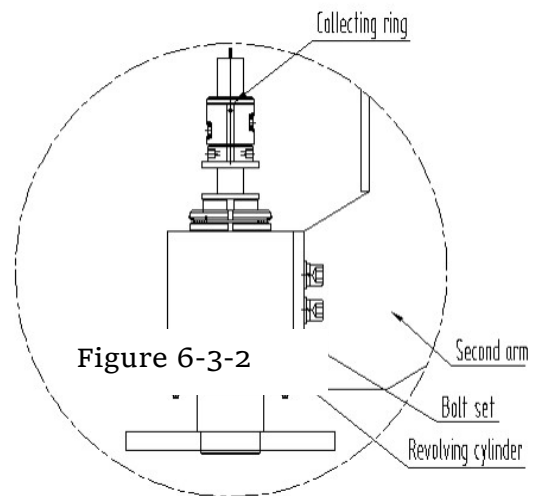
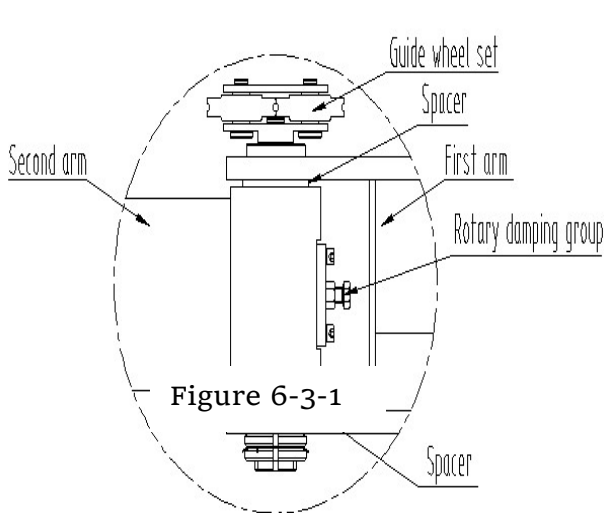


Figure 6-3-2

3. The folded jib crane installation steps are as follows:

- a. The first arm is docked with the second arm (Figure 6-3-1).
- b. Mount the cantilever on the column (Figure 6-3-2).
- c. Install the rotating collecting ring (only for 360° folded jib crane).
- d. Rotate the cantilever over the entire range of motion to ensure unobstructed rotation.

4. Important Notice:



- a. The cantilever should be slightly upturned before the cantilever is unloaded.
- b. Lubricate the graphite bearings before installing them.
- c. The mobile jib crane hanging legs are not opened, the lifting is strictly prohibited. When the feet are fixed, the opening angle is divergent.

VII. Mounting Accessories

1. The 360° jib crane installation steps are as follows:

- a. Installation of electric control box (Figure 7-1-1).
- b. Running end stop installation (See the installation manual in the attachment).
- c. Rotary stop installation (Figure 7-1-2).
- d. Installation of C-shaped steel (Figure 7-1-3).
- e. Install the pulleys and cables. The cable pulleys are generally arranged at a pitch of 1.2 to 1.5 M. That is, when the cables are tightened, the sag height is not too long, which is not only beautiful but also does not interfere with other equipment.
- f. Reconfirm that the cable pulley or cable slide is running smoothly in the track.

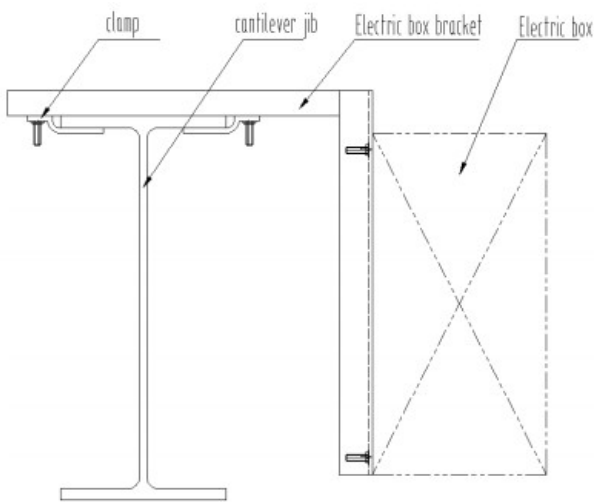


Figure 7-1-1

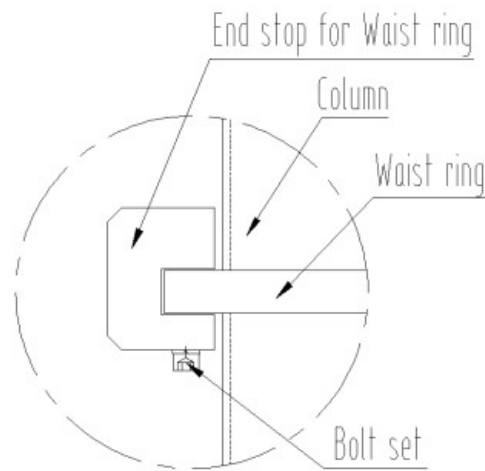


Figure 7-1-2

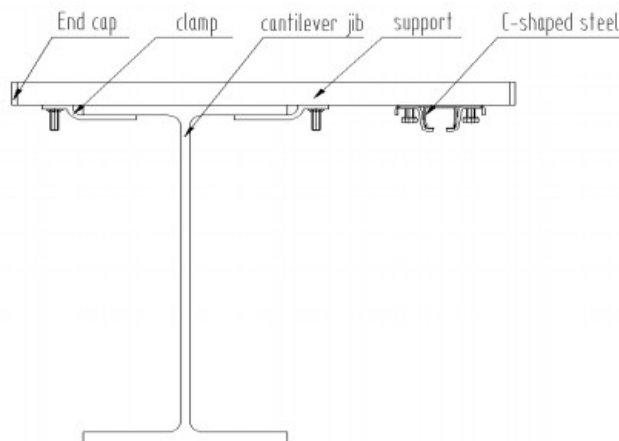


Figure 7-1-3

2. The 270° jib crane installation steps are as follows:

- a. Running end stop installation (Figure 7-2-1).
- b. Rotary stop installation(Figure 7-1-2).
- c. Install the pulleys and cables. The cable pulleys are generally arranged at a pitch of 1.2 to 1.5 M. That is, when the cables are tightened, the sag height is not too long, which is not only beautiful but also does not interfere with other equipment.
- d. Reconfirm that the cable pulley or cable slide is running smoothly in the track.

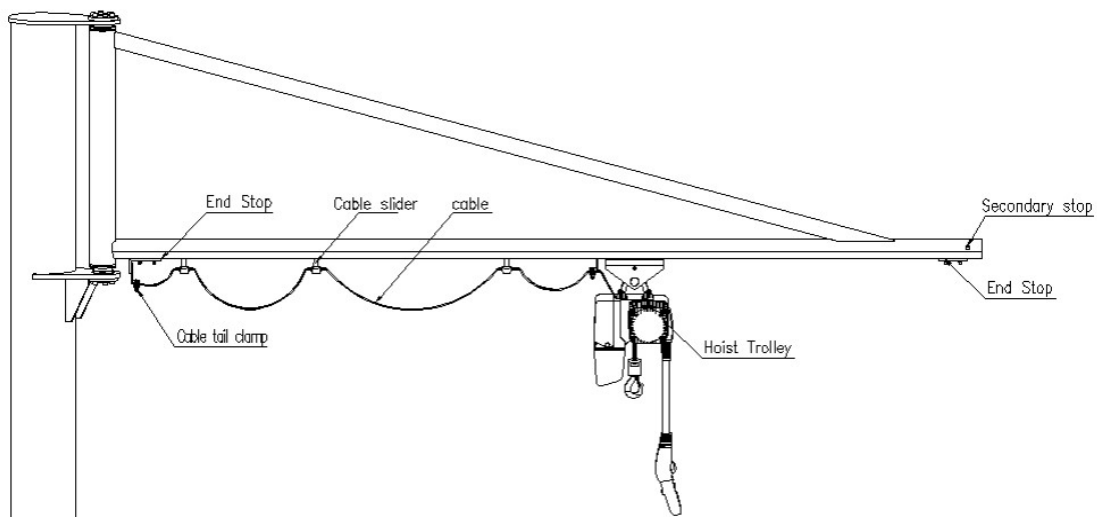
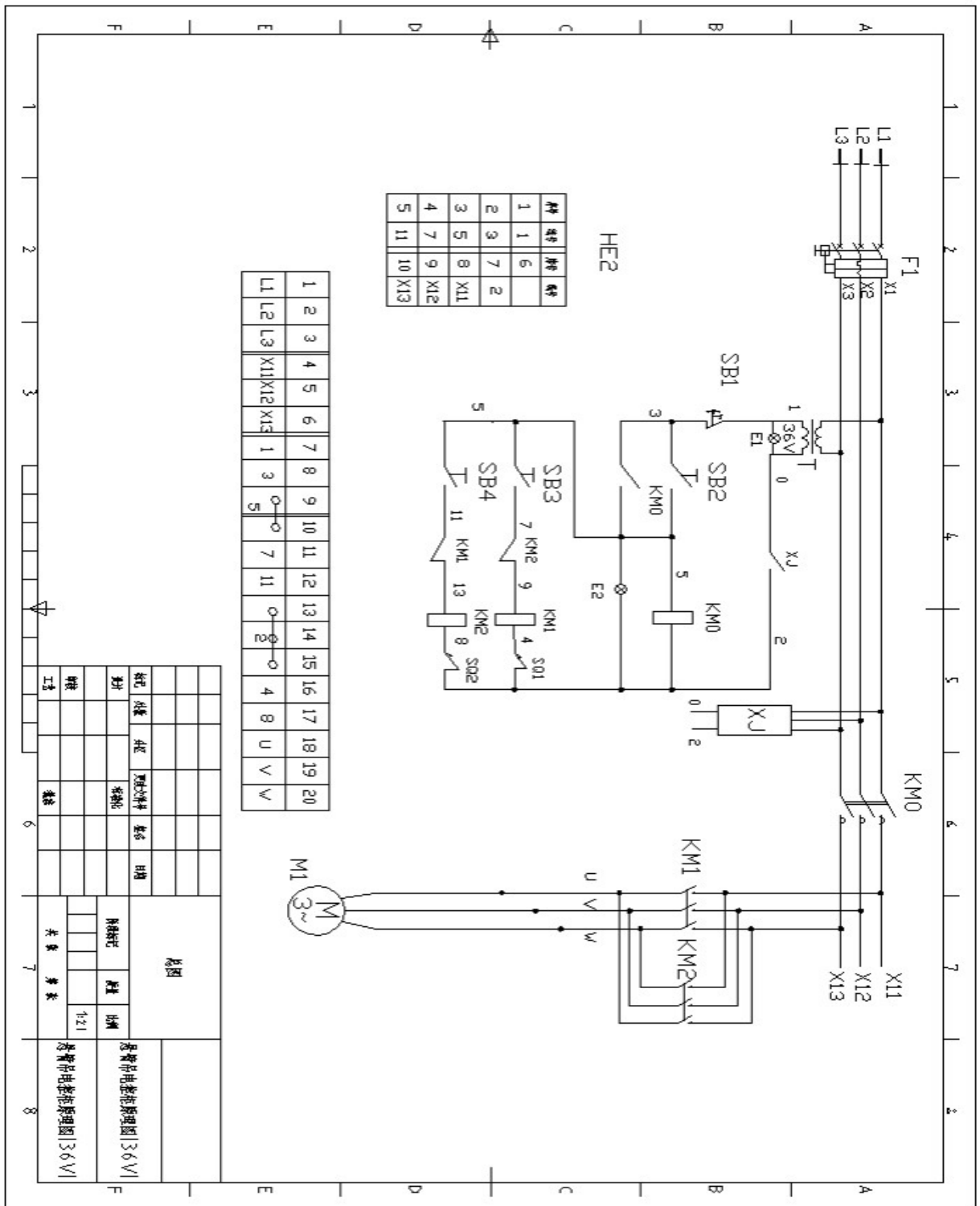


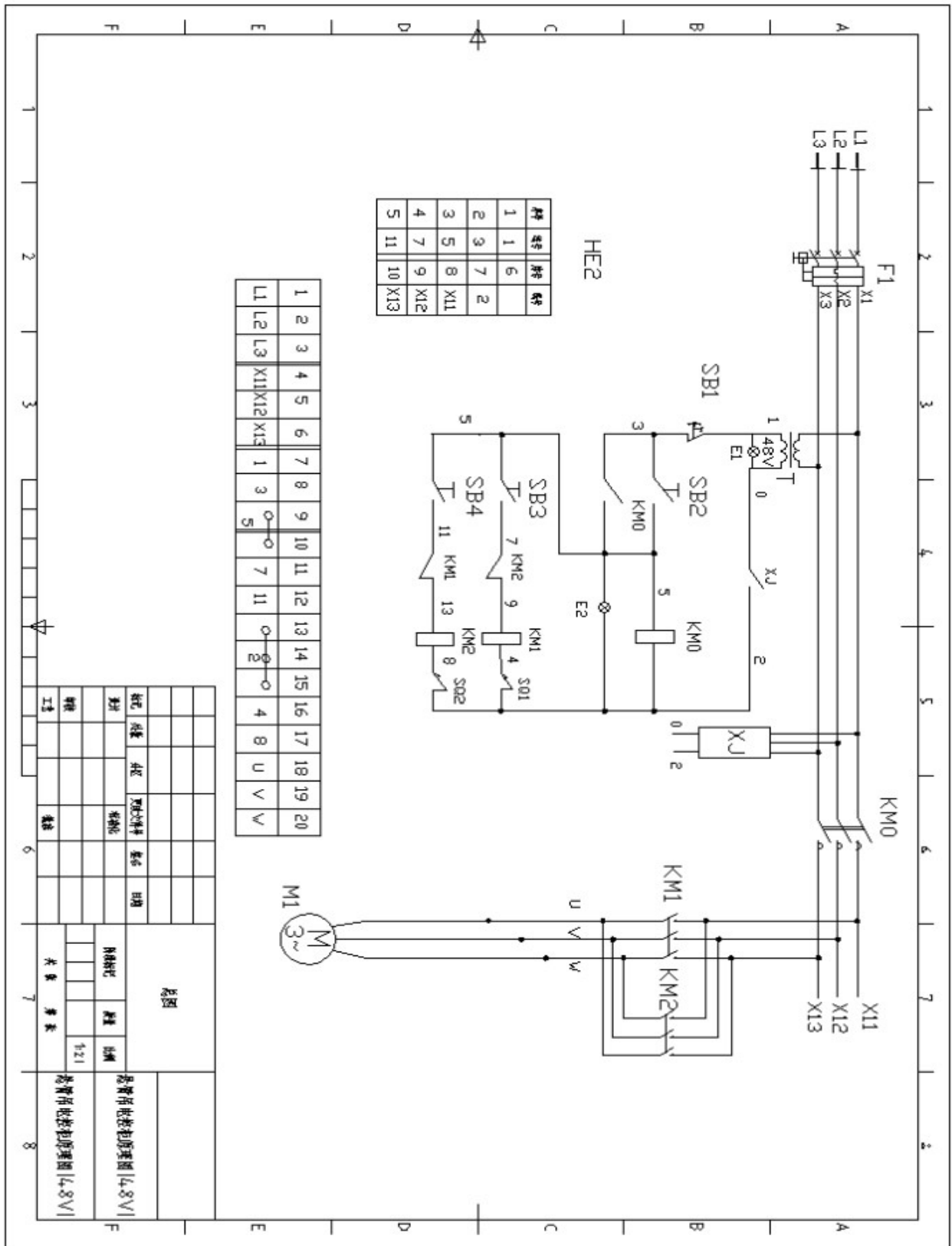
Figure 7-2-1

3. Important Notice:

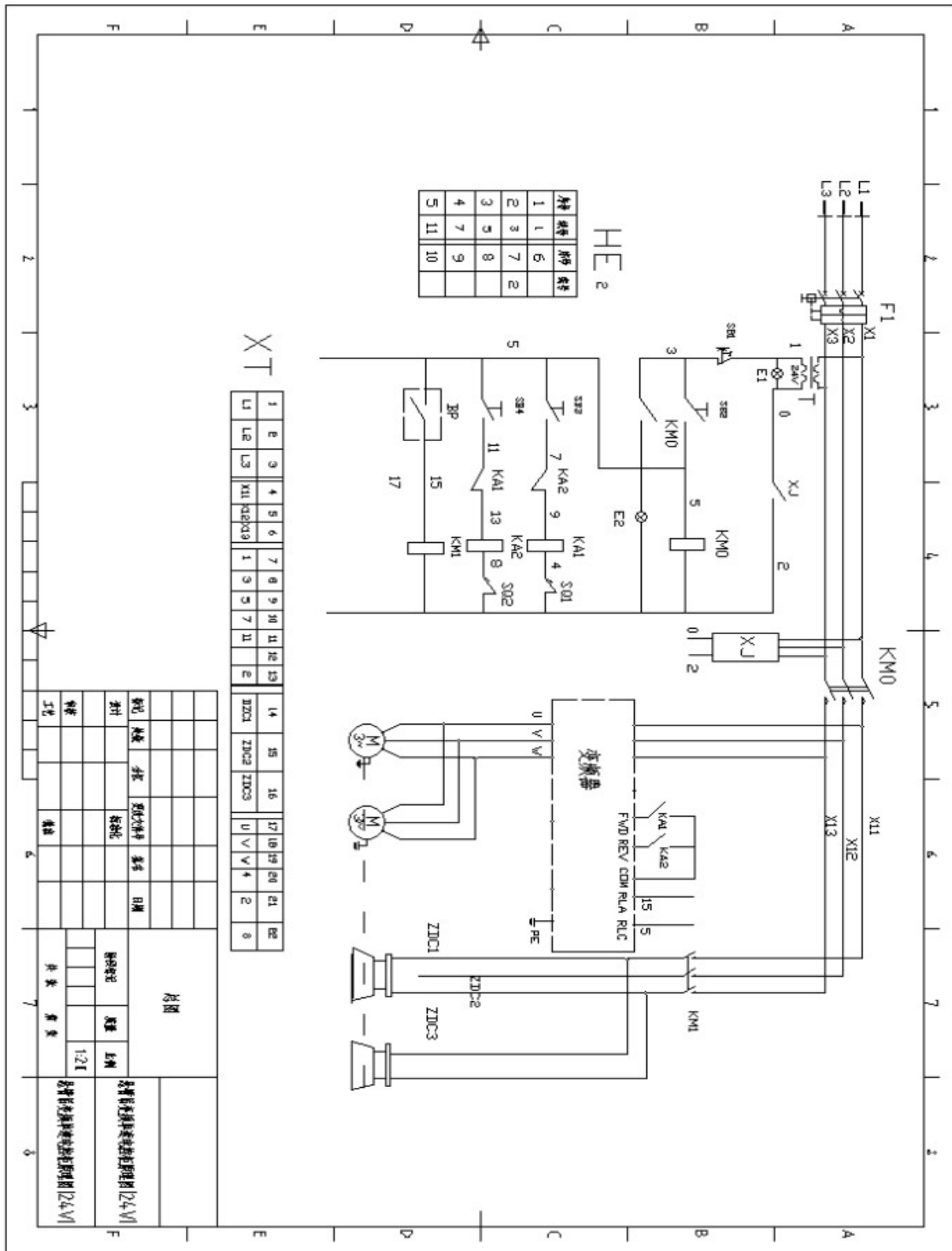
a. When installing the cable, do not over-tighten the cable, otherwise the cable protection

layer may be damaged.





2. Schematic diagram of electric control cabinet with single-speed inverter for jib crane (24V/36V/48V)



IX. Finishing work

1. Verify that all buffers and all accessories are in place.
2. Check and confirm that all bolts have been tightened as required and that the flat washers have been flattened.
3. Install the dust cover of the corresponding track at the end of the track.
4. Post the load LOGO and nameplate at the appropriate location on the device.
5. If necessary, use the paint provided to repaint the crane.
6. File packing list, installation manual, assembly drawing and all other documents and keep them properly.

7. **Important tips:**

Please do not discard this manual. The manual will be handed over to the customer as part of the product. The maintenance schedule can be found on the last page of the manual

X. Instructions for crane operators

The cranes produced by Alekcrane are generally used for material handling above the working area of the personnel. Therefore, before using the crane, the operator should be instructed to understand the serious consequences of careless operation. This is very important. The purpose of these recommendations is not to put it into the plant* s equipment safety system. Only by carefully studying the following, we can have a better understanding of safe operation and a greater guarantee of the safety of personnel and machinery on the factory floor. It must be recognized that these are recommendations for the use of crane operators. It is the responsibility of the user to make personnel aware of all national and local regulations and rules and to provide necessary training for certain operators.

1. Qualifications of personnel using equipment:

Safe and effective operation of cranes requires relevant skills: not only must work carefully, good judgment and high alertness, but also resolutely implement relevant safetyrules and practices. These rules and practices are illustrated and proven in current safetystandards. In general, the following persons are not allowed to operate the crane:

- a. People who cannot read and understand this manual correctly.
- b. Persons who are under the legal age.
- c. Persons with hearing or visual impairment (unless good depth correction is performed).
- d. Persons who affect safe operation due to heart disease or other illnesses.
- e. Personnel who have not read and studied this operating manual carefully.
- f. Persons who have not received proper guidance.
- g. A person who has not demonstrated his understanding of the operating manual through actual operations.
- h. Persons not familiar with suspension equipment and safe suspension operation methods.

2. Jib crane rotation and operation:

Before using a jib crane, the operator should ensure that the hook is high enough and there are no obstructions around. Before the crane lifts the material, the cantilever should be moved into position, lifted and gradually accelerated, then slowly move the cantilever. Slow down when approaching the cantilever stop position.

3. Moving operation of the hoist trolley:

Before lifting the material, the hoist should be positioned directly above the material to be lifted. When the sling is in a slack condition, if the hoist is not positioned above the lifting material, it should be positioned directly above the lifting material before further lifting. If the hoist is not positioned at the upper center of the lifting material, it may cause the lifting material to swing during lifting. Therefore, the hoist trolley should start slowly and stop slowly.

4. Moving operation of the hoist:

Refer to the operating instructions for the lifting device (hoist).

XI. Crane inspection and maintenance schedule

Suggestion Table for Inspection and Maintenance Schedule of Jib Crane

NO.	Component	Maintain	Time
1	Hoist trolley	Check pins, check open pins (open pins should be fully bent around pins), and check fasteners.	Every 2000 hours or one year
2	Buffer (stop)	Check whether the washer is completely flattened and replace the buffer if the through bolt is exposed.	Every 2000 hours or one year
3	Suspension cable / vacuum hose clamp	Check whether the washer is completely flattened.	Every 2000 hours or one year
4	Wheel	Check for cracks, dents, or troughs: all of this increases the pull. If any of these conditions exist, the wheel should be replaced.	Every 2000 hours or one year
5	Fastener	Check whether the washer is completely flattened and whether the nut is tightened in accordance with the provisions of this manual.	Every 2000 hours or one year
6	Rotating shaft	Check whether the rotating shaft is properly installed and whether the cantilever is deflected.	Every 2000 hours or one year
7	Accessories	General inspection for all accessories	Every 1000 hours or 3 months
8	Crane	Overall Visual inspection for all cranes	Every 1000 hours or 3 months

Important tips:

If there is any change in tension or abnormal noise, should stop the crane operation and repair the crane immediately. There is no need to lubricate the track. Lubricating tracks may absorb particles in the air and increase rolling resistance.

XII. Ten objects prohibited from lifting & Three things crane shouldn't cross over

1. "10 No lifting" for Crane:
 - 1) No lifting for Exceeding the rated load.
 - 2) No lifting for unknown signal, unknown weight, dim lighting.
 - 3) No lifting if the slings and accessories are not tied tightly or do not meet the safety Requirement.
 - 4) No lifting for object under working.
 - 5) No lifting for askew object.
 - 6) No standing for workpiece with standing person or floating live objects.
 - 7) No lifting for Inflammable and explosive materials.
 - 8) No lifting for No padded Objects with angular corners.
 - 9) No lifting for Buried item.
- 10) No lifting for violated command.
2. "3 No crossing" for crane:
 - 1) No crossing over the people.
 - 2) No crossing over the car or the locomotive.
 - 3) No crossing over the device.