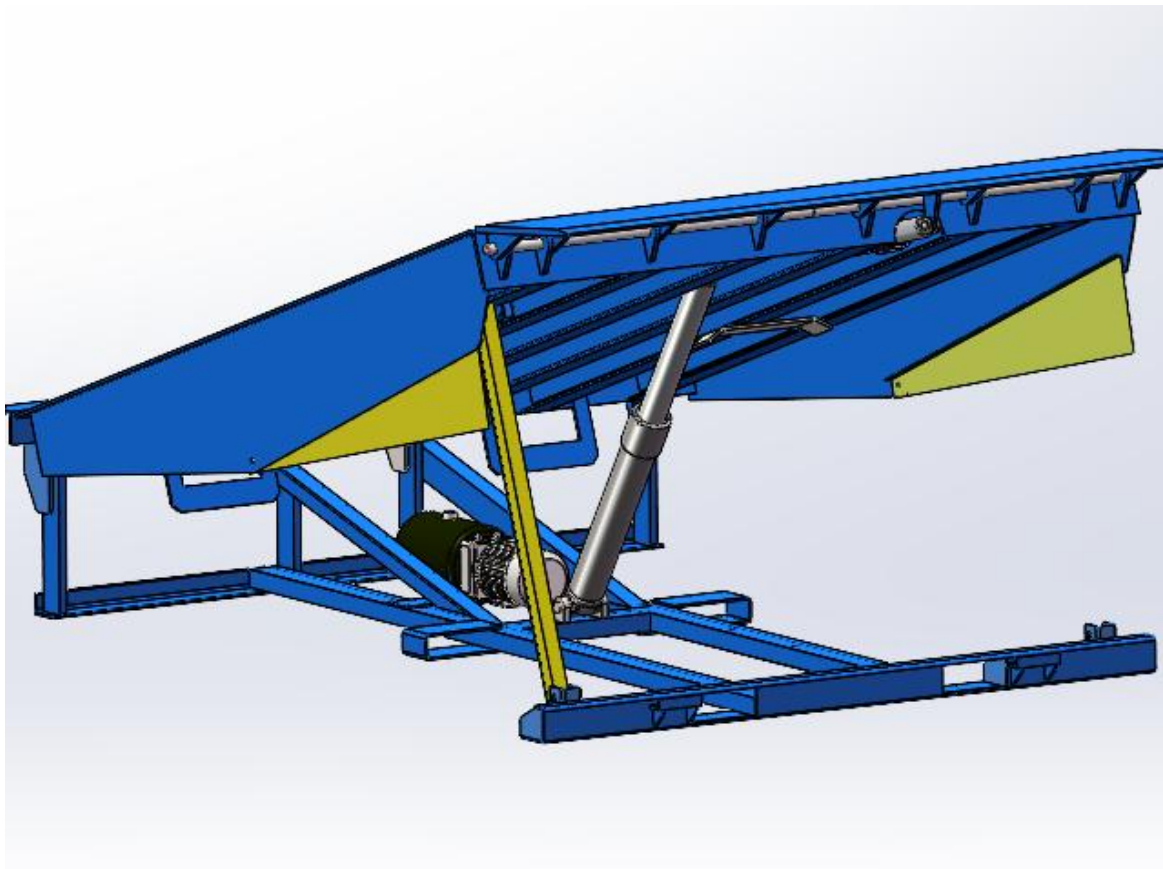


Hydraulic Dock Leveler



Copyright Reserved

Anhui Beauway Machinery Manufacturing Co., Ltd.
Add: No.1, Yuhuan Avenue, North District, Xiaoxian Economic Development Zone,
Suzhou City, Anhui Province, China
Web: www.beauway.com Tel: +86 19016048953

Table of Contents

Table of Contents	3
II. Main Structure and Working Principle	3
III. Main Models and Installation Requirements	5
IV. Usage Method	7
V. Maintenance and Precautions	8
VI. Common Faults and Troubleshooting	9

Thank you for choosing Beauway hydraulic dock leveler products.

Please read this manual carefully before use.

I. Application

Dock levelers are platforms used for loading and unloading in modern factory warehouses. They flexibly connect loading platforms to truck beds of different heights, allowing loading and unloading vehicles or tools to move freely in and out of trucks to unload goods. This greatly improves loading and unloading efficiency and the safety of operators. It is an essential loading and unloading equipment for modern warehouses.

II. Main Structure and Working Principle

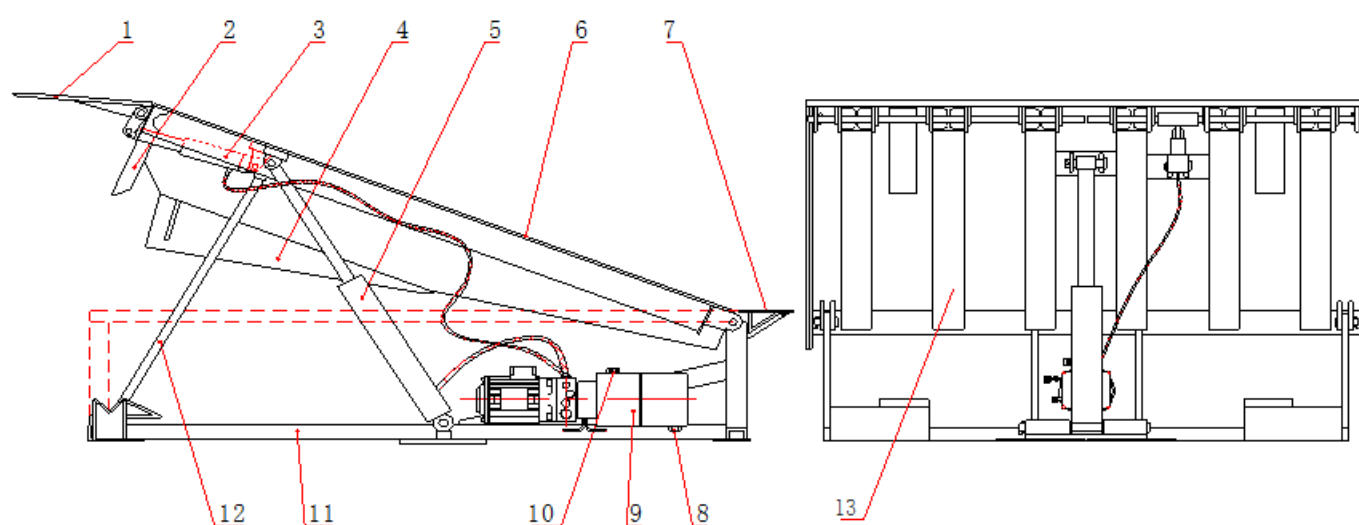


Figure 1: Dock leveler structure diagram

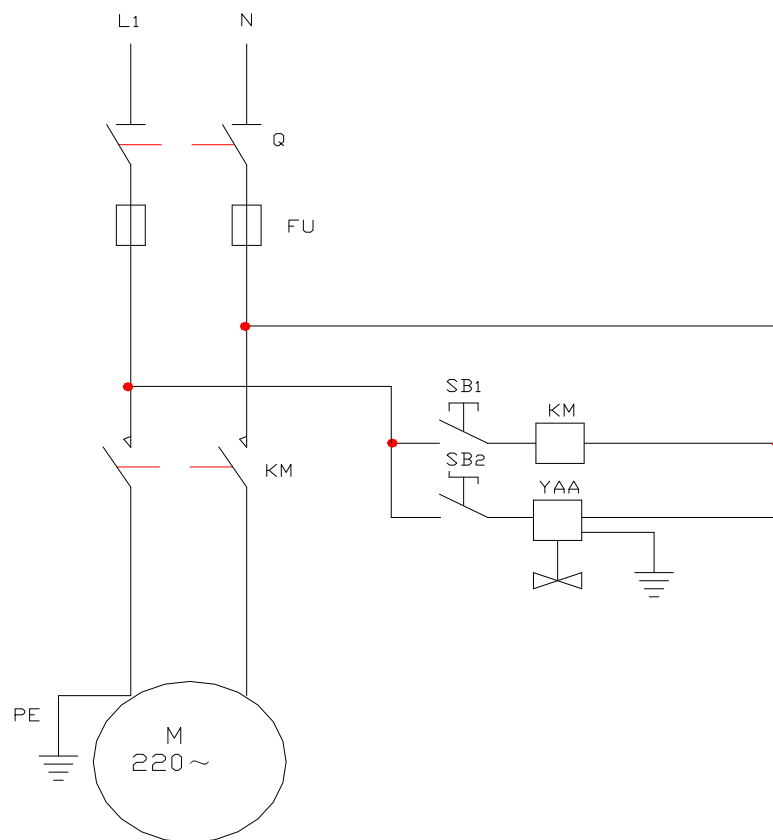
(I) Main Structure

Dock levelers consist of a mechanical and hydraulic transmission system and an electrical control system. Their main components are shown in Figure 1.

II. Basic Working Principle

Press and hold the electric control button SB1. KM closes, the motor runs, the hydraulic pump operates, hydraulic directional valve 2 opens, and hydraulic directional valve 3 closes. High-pressure oil flows into the working chamber of the lifting cylinder through the oil pipe, raising the adjusting plate. When the dock leveler reaches its maximum height, hydraulic directional valve 1 opens, the tilting cylinder operates, and the small plate opens. Then release button SB1. The hydraulic pump station stops working. Under its own weight, the dock leveler's hydraulic directional valve 2 reverses, causing the return oil from the lifting cylinder to flow back to the oil tank through the throttle valve, and the dock leveler slowly descends. After unloading, both hydraulic directional valves 1 and 3 open. When the small plate leaves the truck bed, under its own weight, the return oil from the tilting cylinder flows back to the oil tank through hydraulic directional valves 1 and 3. In case of an emergency during the raising or lowering of the large or small plates, rotate the emergency stop switch SB2 to stop the movement of the large and small plates.

The circuit and hydraulic working principle are shown in Figures 2 and 3, respectively.



Note: If the power unit uses a 220V motor, the contactor KM is not shown in the circuit diagram.

Figure 2 Electrical Principles of Dock Leveler

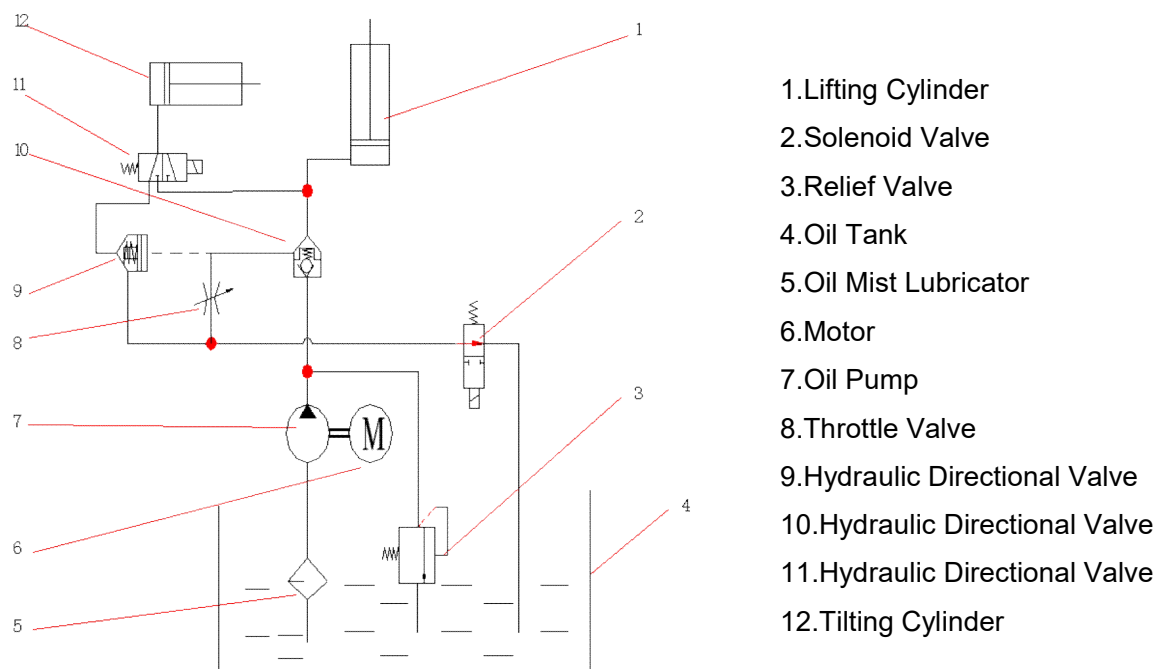


Figure 3: Hydraulic Schematic Diagram of Dock Levelers

III. Main Models and Installation Requirements

(I) Product Models

Dock Levelers are available in the following board sizes, as shown in the table below.

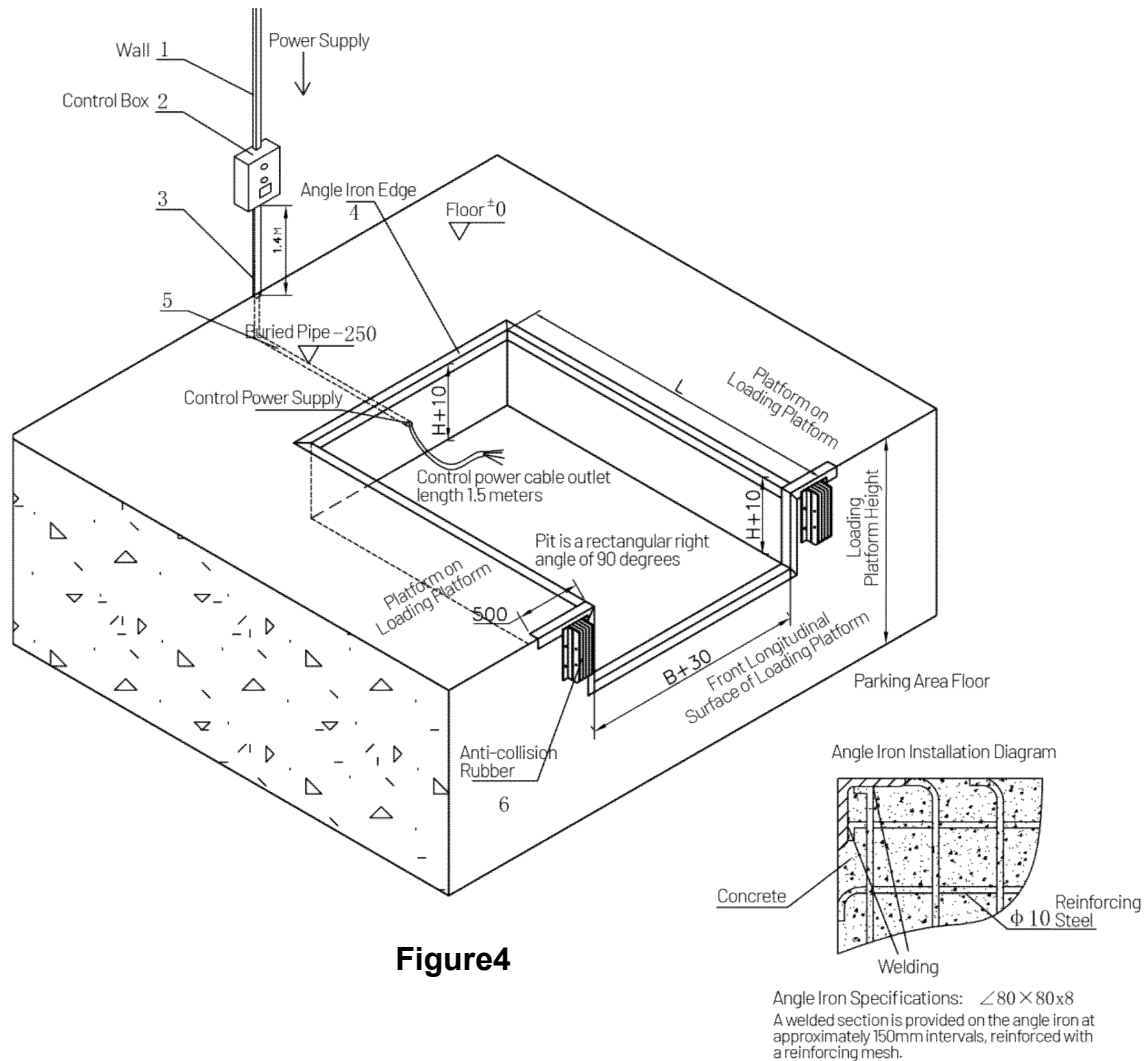
Model	Feet	Closed Dimensions: Length (L) x Width (B) x Height (H) mm	Adjustment Range (mm)
BW-GT-Y10/6X6	6x6	1680 x 1830 x 490	Upward Adjustment +300 / Downward Adjustment-300
BW-GT-Y10/6X8	6x8	2280 x 1830 x 490	Upward Adjustment +350 / Downward Adjustment-300
BW-GT-Y10/6X10	6x10	2880 x 1830 x 490	Upward Adjustment +450 / Downward Adjustment-300
BW-GT-Y10/6X12	6x12	3480 x 1830 x 490	Upward Adjustment +550 / Downward Adjustment-250
BW-GT-Y10/6.5X6	6.5x6	1680 x 1980 x 490	Upward Adjustment +300 / Downward Adjustment-300
BW-GT-Y10/6.5X8	6.5x8	2280 x 1980 x 490	Upward Adjustment +350 / Downward Adjustment-300
BW-GT-Y10/6.5X10	6.5x10	2880 x 1980 x 490	Upward Adjustment +450 / Downward Adjustment-300
BW-GT-Y10/7x6	7x6	1680 x 2130 x 490	Upward Adjustment +300 / Downward Adjustment-300
BW-GT-Y10/7x8	7x8	2280 x 2130 x 490	Upward Adjustment +350 / Downward Adjustment-300
BW-GT-Y10/7x10	7x10	2880 x 2130 x 490	Upward Adjustment +450 / Downward Adjustment-300

The above specifications conform to international standard models. Various height adjustment boards can also be customized according to different needs and actual conditions.

(II) Installation Requirements

(1). Dock levelers require pre-reserved installation pits and power connection cables. See Figure 4 for the dimensions of the pre-reserved installation pits.

Beauway Dock Levelers Reservation Diagram (Unit: mm)



Instructions:

1. Items 1, 3, 4, and 5 in the drawings refer to the power conduit and power supply, which shall be provided by the buyer. The main power supply shall be provided by the buyer to the control box. The pre-embedded conduit at the lower end must be unobstructed and contain wire. The power outlet shall be located at the center of the rear plane of the pit, using a 1-inch diameter steel pipe with a 1.5mm five-core cable inside.

2. The recommended platform height is 1200-1300mm.

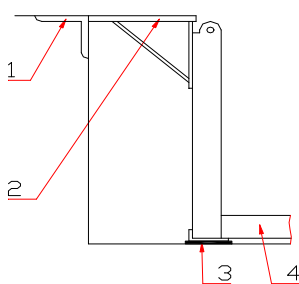
3. The pre-embedded angle iron shall be completed by the buyer. The option on the right is ideal; dimensions are shown in the markings.

4. During construction, the buyer must ensure that the diagonals of the upper and lower planes of the pit are equal, all angles are 90 degrees, the platform plane is on the same plane as the angle iron, and the front longitudinal plane is on the same plane as the two side angle irons. The pit must be clean and tidy.

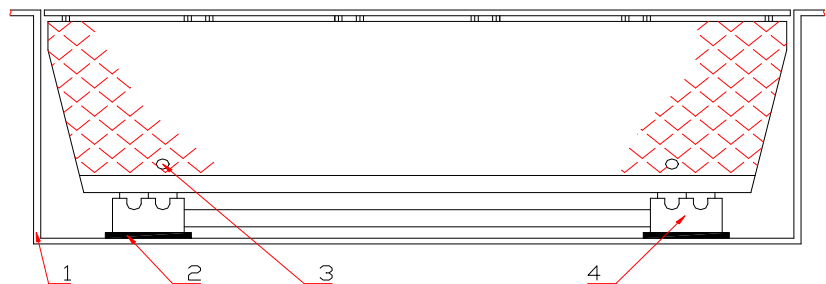
5. Items 2 and 6 are to be installed by the seller during delivery. The equipment weighs approximately 800 kg, has a dynamic load of 8 tons, and uses a 380V, 50Hz power supply. The diagonal error must not exceed 5mm.

6. The horizontal plane of the loading platform and the angle iron must be on the same plane, the front longitudinal plane of the loading platform and the angle iron must be on the same plane, and the structural strength must be greater than C30.

(2).To ensure the working surface of the dock levelers and the platform surface are on the same plane, measure the height dimensions of the bottom and outer edge of the pit, calculate the thickness of the base plate, and weld the base plate. See Figures 5 and 6.



1—Bottom Angle Iron 2—Transition Plate
3—Base Plate 4—Base Frame



1—Angle Iron 2—Base Plate 3—Connecting Bolts 4—Foot Plate

Figure 5: Schematic Diagram of Bottom Base Plate Figure 6: Schematic Diagram of Front Base Plate

3.Using a wire rope or canvas hook, hoist the dock levelers horizontally into the pit, approximately 15cm forward of the center of the adjusting plate. Ensure the gaps on both sides of the adjusting plate are consistent, and the gap between the transition plate and the rear angle iron of the pit is no more than 3mm, and keep them level.

Note: Before hoisting, be sure to tighten the connecting bolts on the hinge plate. See Figure 7.

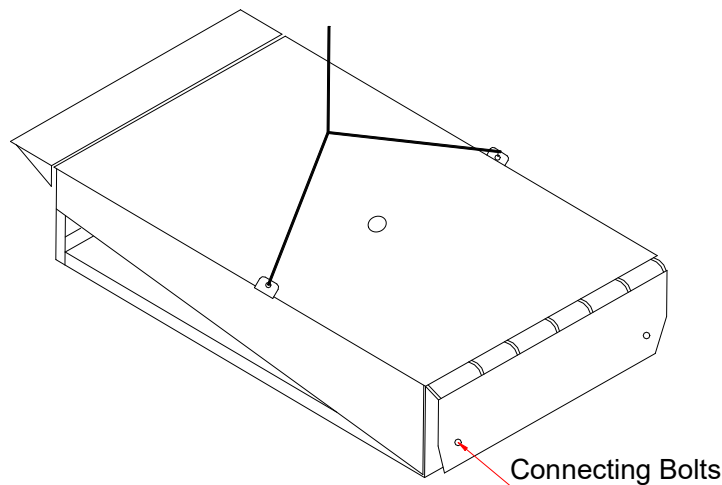


Figure 7 Dock Levelers Hoisting Diagram

4. Position the dock levelers, weld the transition plate and bottom angle iron together at intervals (as shown in Figure 5), weld the foot plate and front angle iron together (as shown in Figure 6), and install the anti-collision rubber with expansion bolts (as shown in Figure 4).

The dock levelers are now installed. Immediately after installation, remove the hinge connecting bolts, then connect the control button to the power supply for use.

IV. Usage Method

(I) Oil Filling

1. The hydraulic oil used is generally 32# or 46#. Fill the oil tank until the oil level reaches the mark on the dipstick.
2. Inject grease into the grease fitting.

(II) Dock Levelers Operation Method

1. Lifting Process: Press and hold button SB1. The large hydraulic cylinder extends, lifting the large plate. When it reaches the highest position, the small hydraulic cylinder starts working, and the small plate opens.
2. Working Process: Release button SB1. The dock levelers slowly descend under their own weight. Once the small plate rests on the truck floor (overlapping by more than 15cm), it is ready to operate. (If the truck floor is lower than the level of the loading platform, pull the chain during the descent until the small plate presses against the truck floor.)

3. Ending Process: After loading is complete, press and hold button SB1 to lift the large plate. The small plate automatically returns to its original position. When the large plate reaches a certain height, release the button. The dock levelers slowly return to their original position under their own weight. This completes the entire working process.

V. Maintenance and Precautions During Use

(I) Overview

The dock leveler requires regular inspection and maintenance. Any potential problems should be addressed immediately to minimize or eliminate malfunctions. This benefits work efficiency, extends service life, and ensures the safety performance of the dock leveler.

(II) Maintenance Requirements

1. Lubricate rotating parts such as pins with grease fittings with grease fittings monthly.
Lubricate moving joints with machine oil.
2. Change the hydraulic oil after three months of initial use, and then annually thereafter.
Follow the aforementioned oil level guidelines.
A comprehensive overhaul should also be performed at this time
3. Change the hydraulic oil after three months of initial use, and then annually thereafter.
Follow the aforementioned oil level guidelines.
A comprehensive overhaul should also be performed at this time.

(III) Maintenance and Precautions During Use

1. Always use the safety support rods when performing maintenance and cleaning the adjustment plate.



2. When loading cargo, the vehicle must be securely fixed and cannot be moved, otherwise an accident may occur

VI. Common Faults, Causes, and Solutions

Common faults of the dock leveler during use are shown in the table below.

Fault	Cause	Solution
Motor does not run.	1. Button damaged or poor contact; 2. Contactor damaged; 3. Poor wiring contact.	1. Inspect or replace the button; 2. Replace the contactor; 3. Inspect the wiring and tighten the terminals.
Motor runs, but the large hydraulic cylinder does not work.	1. Insufficient oil in the tank; 2. Oil pump damaged; 3. Relief valve set pressure too low or damaged; 4. Hydraulic check valve damaged; 5. Large hydraulic cylinder leaking.	1. Add appropriate amount of hydraulic oil; 2. Replace the oil pump; 3. Readjust the relief valve set pressure or replace the relief valve; 4. Replace the hydraulic check valve; 5. Inspect and replace its oil seal.
Large plate not raised to maximum height, small plate opened.	1. Hydraulic directional valve pressure too low.	1. Tighten the hydraulic directional valve adjusting screw.
The large valve reaches its maximum height, but the small valve does not open.	1. Excessive pressure in the hydraulic directional valve; 2. Leakage in the small hydraulic cylinder; 3. Insufficient hydraulic oil in the tank.	1. Loosen the adjusting screw of the hydraulic directional valve; 2. Inspect and replace its oil seal; 3. Add the appropriate amount of hydraulic oil.

Note:

1. The hydraulic directional valve pressure is usually pre-adjusted at the factory; do not adjust it unnecessarily.



2. The relief valve pressure is pre-adjusted at the factory; never adjust it. Adjusting it will cause accidents unless performed by a qualified technician.

Our company may improve models and specifications
using advanced technology without prior notice.

Anhui Beauway Machinery Manufacturing Co., Ltd.
Add: No. 1, Yuhuan Avenue, North District, Xiaoxian Economic Development Zone,
Suzhou City, Anhui Province, China

Tel: +86 19016048953