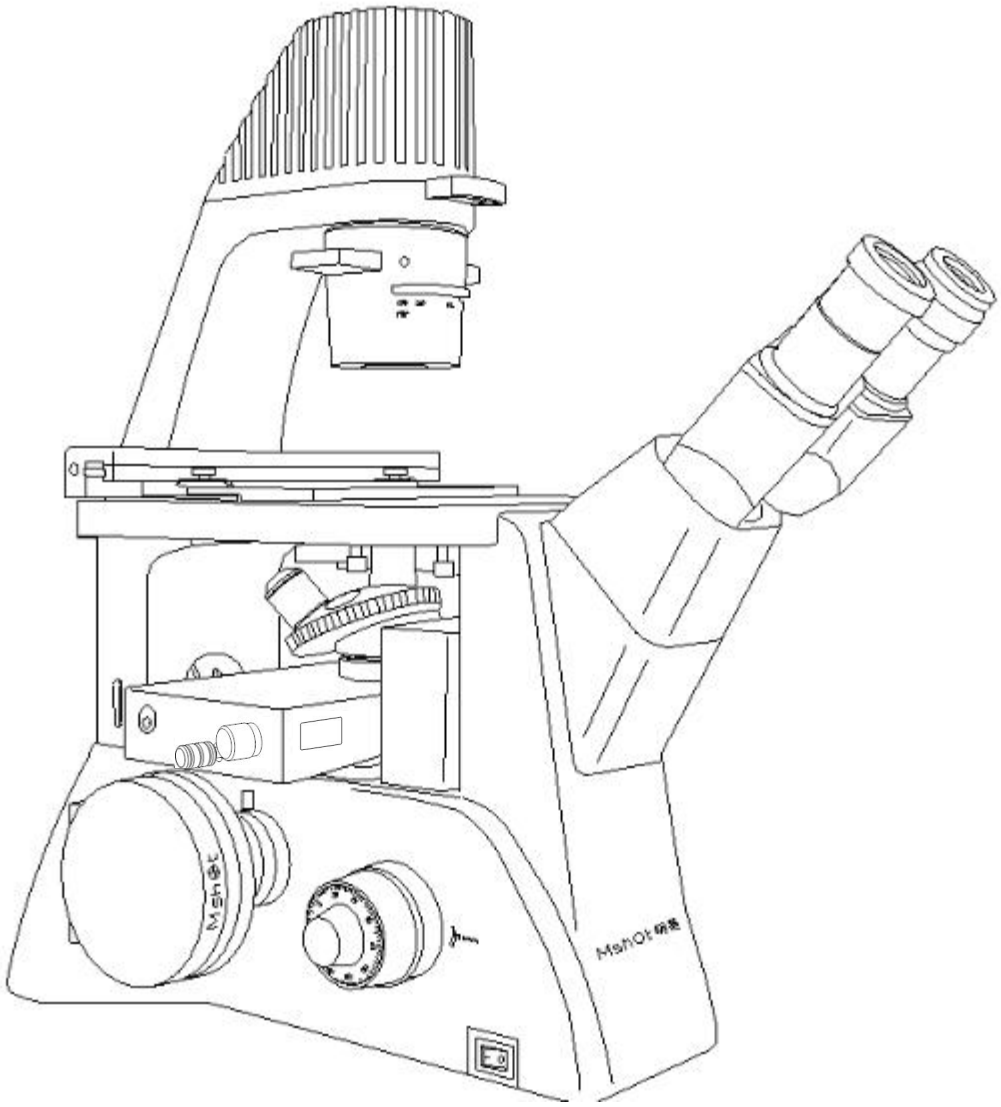
Guangzhou Micro-shot Technology Co., Ltd.

MF52- N

Inverted fluorescence microscope

User manual

Address: Room 506, No. 1933, Huaguan Road, Tianhe District, Guangzhou (Commercial and Office Building A)
http://www.m-shot.com
Tel: 020-38262481
Fax: 020-38262491


MshOt

Sincerely thank you for purchasing our products

This instrument is a precision optical instrument, although the design of our company's products provides the highest safety for your use. However, improper use or ignorance of this manual may result in personal injury and property damage. For your safety, to ensure the service life of the instrument and correct daily maintenance, please read this manual carefully before using the instrument.

Attention please

In this manual, safety instructions are indicated by the following symbols. Please be sure to follow the prompts of the following symbols to ensure correct and complete operation.

Warn

Ignoring the warnings of this symbol may result in personal injury or damage to the instrument!

Ignoring the hints of this symbol may affect the microscope observation effect.

Remind the user of the operating skills of the microscope.

Pay attention to environmental protection.

Safety Reminder

Warning!

1. Be sure to turn off the power switch and remove the power cord before installing, replacing the bulb or fuse, plugging and unplugging the power supply.

To prevent electric shock or fire, be sure to turn off the power switch and remove the power cord before installing this unit, replacing the bulb or fuse, plugging and unplugging the power supply.

Warning!

2. Do not disassemble

Except the removable parts mentioned herein, no part of this unit shall be removed, otherwise the performance of this unit may be reduced, or may cause an electric shock, injury or damage to this unit. Please contact the supplier if any fault occurs.

Warning!

3. Input voltage

Check if the input voltage is consistent with your local voltage supply. If not, do not operate this unit and contact the supplier. Improper input voltage may cause a short circuit or fire thereby causes damage to this unit.

Warning!

4. Use specific bulb, fuse and power cord

Use of an improper bulb, fuse or power cord may cause damage or fire to this unit. Any extended power cord used must be grounded (PE).

Warning!

5. Protect this unit from high temperatures, dampness and foreign objects

To prevent short circuit or any other fault, do not expose this unit to any high temperatures or dampness environment for a prolonged period of time. A suitable operating environment is designated at a temperature of 5°C-35°C, and relative humidity of 20%-80% (at 25°C). If water splashes on this unit, turn off the power switch and remove the power cord immediately, and then wipe the water off with dry cloth. When any foreign object enters or drips onto this unit, please stop operating the unit and contact the supplier.

Warning!

6. Heat of light source

The lighting bulb generates high temperatures during operation. Do not touch the collector lens or lamp box when the lamp is illuminated, and do not touch the bulb within 30 minutes after the lamp goes out due to high temperatures arising from operation. When replacing the bulb, make sure it has cooled down properly (the lamp should be off for at least 30min).

★ To prevent burn, do not touch the bulb when the lamp is illuminated or within 30min after it goes out.

★ To prevent fire, do not place any fibrous product, paper, flammable or explosive material (e.g., gasoline, petroleum ether, alcohol) near the halogen lamp housing or mercury lamp housing.

Warning!

7. Coarse/fine focusing knobs

This unit employs a coarse/fine coaxial focusing mechanism. Do not turn the left/right coarse/fine focusing knob in the opposite direction. When the objectives lifting device reaches the limit of motion, do not continue to turn the coarse focusing knob, otherwise the focusing mechanism may be damaged.

Caution!

8. Storage place

This unit is a precision optical instrument, and improper operation or storage may cause damage or

its precision may be adversely affected. Consider the following when selecting a storage place:

※ Avoid placing the unit under direct sunlight, directly under interior lighting or any other bright place.

※ A suitable operating environment is designated at a temperature of 5°C-35°C, and relative humidity of 20%-80% (at 25°C). Do not expose this unit to high temperatures, dampness or dust for a prolonged period of time, otherwise mist or mold may develop or dust may deposit on the lens, thus cause damage to this unit and shortening its life.

Caution!

9. Installation of bulb

Do not touch the glass surface of the bulb directly with bare hands. When mounting the bulb, wear gloves or wrap it with cotton material.

※ Wipe off any dirt on the surface of the bulb with a clean cotton fabric dipped in alcohol. If the dirt is not thoroughly removed, it would etch the surface of the bulb weakening its brightness and shortening its life.

※ Mount the bulb with care to avoid slipping off or injuries to your fingers.

※ When replacing the bulb, make sure its contact is intact. If its contact is damaged, the bulb may be disabled or short-circuited.

※ When replacing the bulb, the feet should be inserted into the holder as deeply as possible. If the feet are not tightly inserted, the bulb may go out or short circuit.

Caution!

10. Instrument handling

This precision optical instrument is heavy and should be handled with care. Strong impact and rough handling are strictly prohibited, it may cause damage to this unit.

11. Environmental protection

Please dispose the wastes from the packaging and operation of this unit by category such as cartoon, foam, plastic, bulb and etc. Do not discard the damaged mercury lamp carelessly in order to avoid creating environmental poll

Table of contents

1. Instrument features and applications

MF52- N is an upgraded version of the multifunctional inverted biological fluorescence microscope. It adopts an excellent infinity optical system and can realize bright field, phase contrast and fluorescence observation. The compact and stable high-rigidity main body fully reflects the shockproof requirements of micromanipulation . Equipped with a detachable mechanical stage, it adopts a coaxial gearless and rack-and-rack transmission system to make the transmission more stable and safe. The long working distance concentrating system can observe the cultured cells without contamination in the tall culture dish or cylindrical flask. The epi-fluorescence microscope system adopts a modular design concept. LED is used as the excitation light source, and the illumination system can be adjusted safely and quickly to achieve efficient and simple fluorescence observation.

This instrument is suitable for microscopic observation of cell tissue and transparent liquid tissue, and can also be used for dynamic microscopic observation of cultured tissue in a petri dish. It can be used in scientific research institutes, colleges and universities, medical and health care, inspection and quarantine, agriculture, animal husbandry and dairy and other departments.

2. Instrument structural features

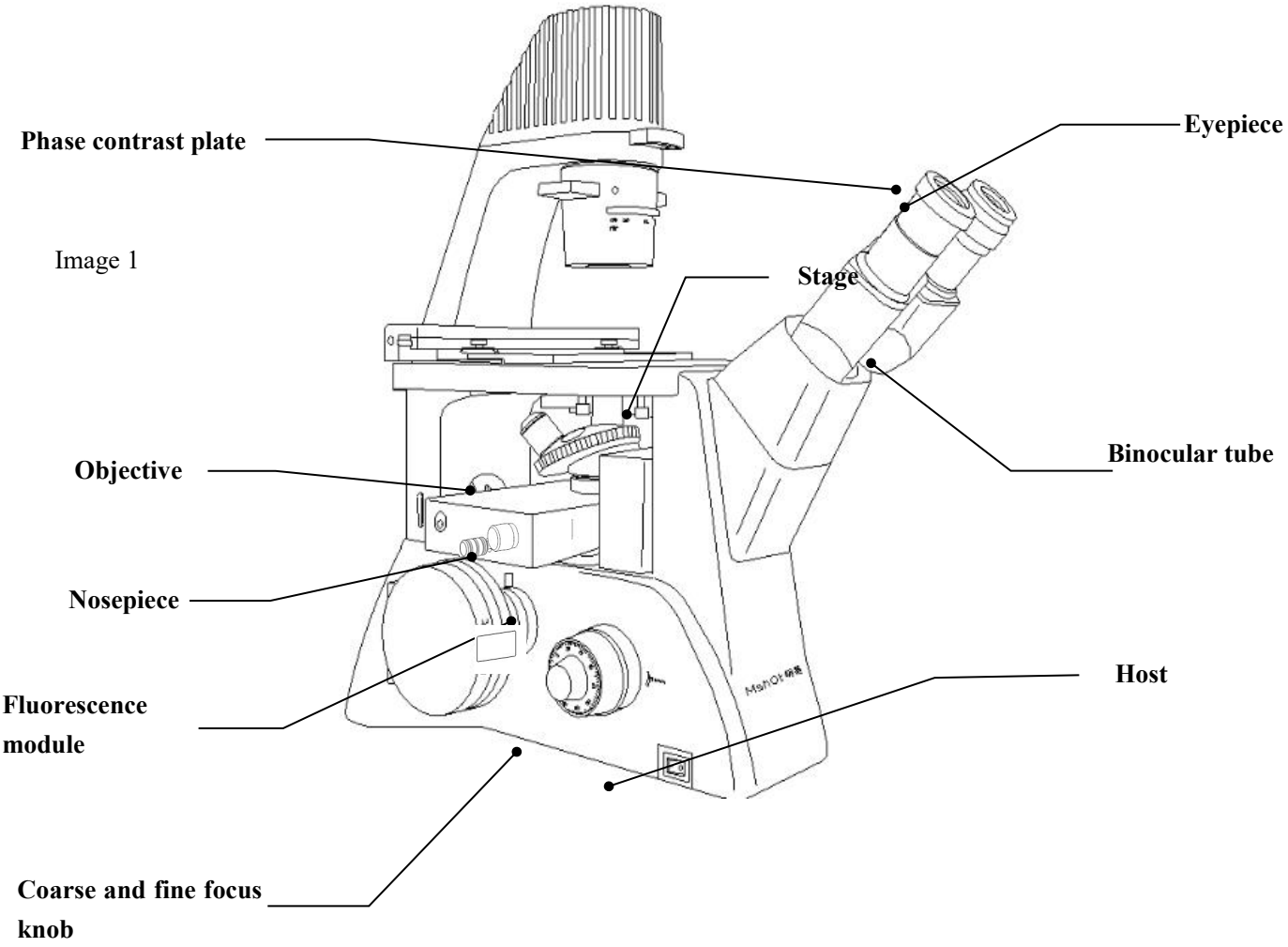


Image 1

3. Instrument installation

1. Installation diagram

> **Attention** Before installation, please make sure that all components are clean and that there are no obvious scratches or dirt on the surface of optical components.

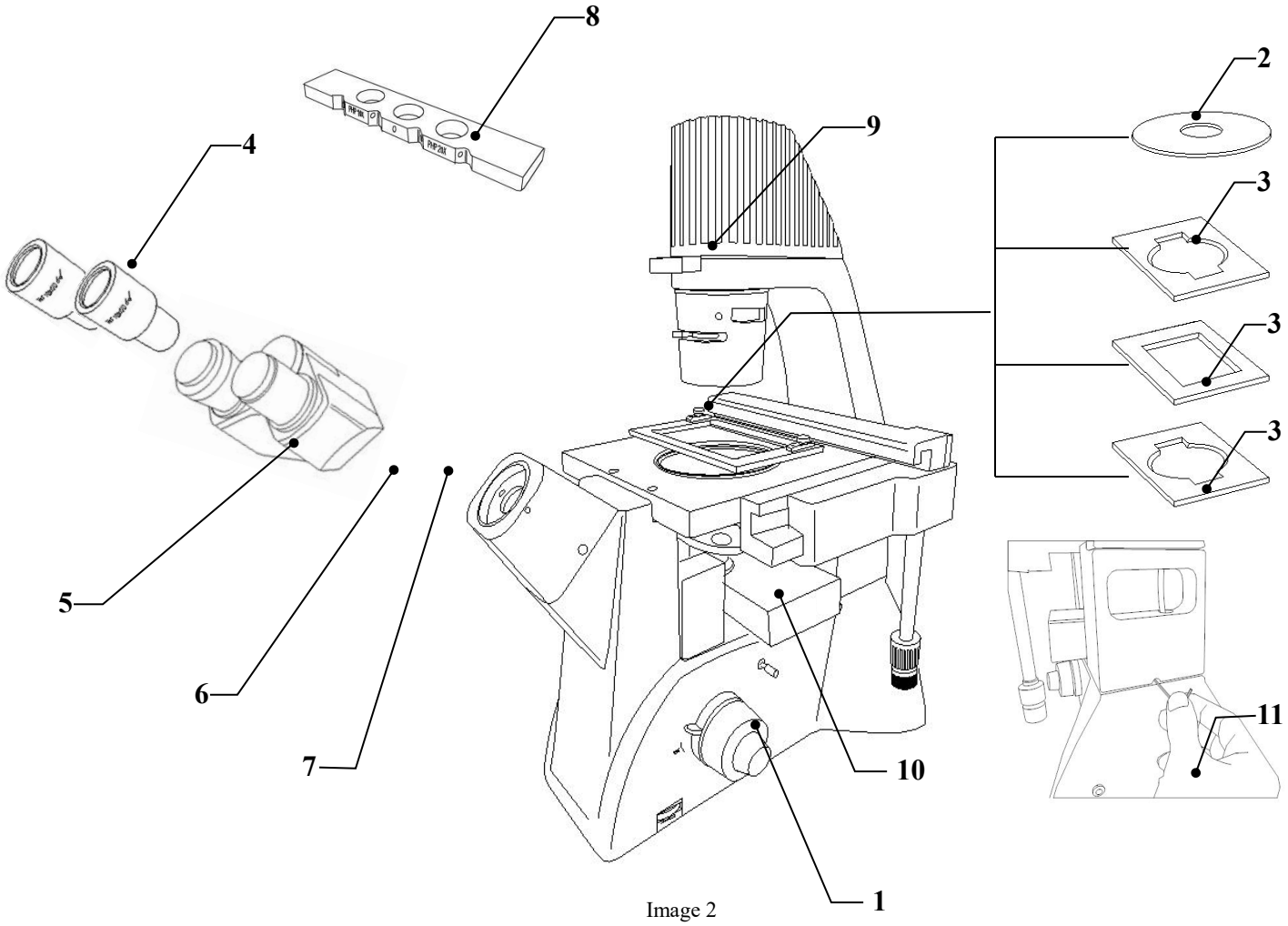


Image 2

2. Installation steps and methods (refer to Figure 2)

（1） Unpack the product packing box, take out the host **1** and place it on the workbench stably, and remove the relevant support packages and dust-proof covers (bags).

（2） Take out the binocular group **5** , remove the dust cover at the bottom, install it on the observation lens base **6 of the main machine, and tighten** the fixing screw **7** with an inner hexagonal tool to fix the binocular group.

（3） Remove the dust cover of the binocular tube, insert the two eyepieces **4** into the eyepiece tube respectively, and rotate them so that the eyepieces and the eyepiece tube fit well.

（4） Insert phase contrast plate **8** into hole **9** .

（5） If you do not need to use the moving ruler, please loosen the fastening screw to disassemble the moving ruler,

and place the circular glass loading plate **2** in the middle circular groove of the loading platform.

（6） If you need to use the mobile ruler (the mobile ruler has been installed at the factory), please take out the petri dish support plate **3** (if you need to use the petri dish support plate to carry the specimen, you can use the petri dish for observation), and place the support plate of the required specification on the mobile ruler inside the bracket.

（7） Push the fluorescence module **10** into the module slot on the microscope , push it to the end, and insert the hexagonal tool from the hole **11** to tighten the fixing screw.

（8） Connect the power cord of the host to the power socket of the host , and connect the power cord of the fluorescent module to the power socket of the module .

（9） Check that the above installation is reliable and safe.

（10） Connect the power cord to a power outlet.

（11） Check and sort out the accessories and tools included in the package, and store them properly so as not to miss them.

4. Technical specifications

The main parameters	total magnification	100X~400X (standard configuration)			
	Mechanical barrel	∝			
	Objective lens	∝			
eyepiece	Flat field wide field of view eyepiece	S WF 10X	Field of view: Φ 22mm	Eyepiece interface Φ30mm _	Parfocal distance 10mm
Binoculars	Hinged binoculars, observation angle is 45 degrees, interpupillary distance is 53~75mm				
objective lens	Magnificatio	Numerical	Working distance	Cover glass	Remark
	4 times	0. 13	17 . 15	-	M-UPLFLN
	10 times	0.25	9 . 3	1.2	
	40 times	0. 58	3.5 _	1.2	
phase contrast objective	10 times	0. 25	9 . 3	1.2	Mark "PH"
	20 times	0. 4 5	5.0	1.2	Mark "PH"
converter	Five-hole converter				
Condenser	Push-pull plate phase contrast condenser, working distance: 55mm, numerical aperture: 0.3				
Stage	The moving range is 77mm (longitudinal) X 135 mm (horizontal), and the moving ruler is				
Petri dish holder	pallet one	86mm (width) X 129.5mm (length), suitable for round petri dish Φ 87.5mm			
	pallet two	34mm (width) X 77.5mm (length) , suitable for round petri dish Φ68. 5mm			
	pallet three	57mm (width) X 82mm (length), suitable for round petri dish Φ6 0 mm			
	pallet four	29mm (width) X 77.5mm (length) can be adapted to round culture dish Φ			

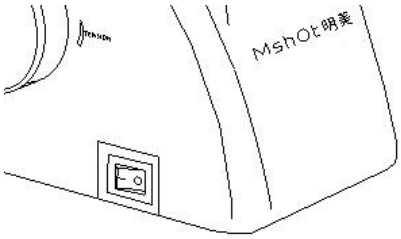
bright field	9W LED, adjustable brightness
fluorescent	LED light source: U center wavelength 365nm, B center wavelength 470nm, G center
Fluorescence Excitation Module	UV excitation : 360-390nm
	B excitation: 460-495nm
	G excitation: 528-553nm

5. Operation method

● Bright field observation

Warn

Before turning on the power switch, please confirm whether the input voltage of the instrument is consistent with the power supply voltage. If it doesn't match, don't use the microscope. If the wrong input voltage is used for the microscope, it will cause a short circuit or cause a fire, which will damage the microscope!



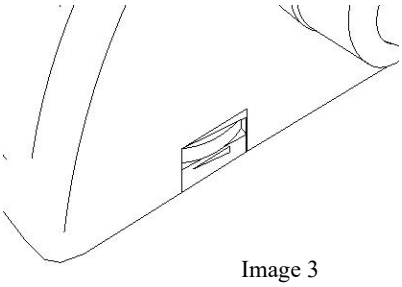


Image 3

1. Turn on the lighting switch and adjust the brightness

Turn on the power switch 1 (turn the switch to "-") to make the light bulb shine.

Rotate the dimmer knob 2 to adjust the brightness of the bulb so that the brightness of the field of view is suitable for visual observation.

See Image 3 .

Attent

Try not to make the brightness adjustment knob in the brightest position for a long time, so as not to reduce the service life of the lamp!

When the instrument is not in use, it is advisable to adjust the brightness adjustment knob to a low position, which is conducive to

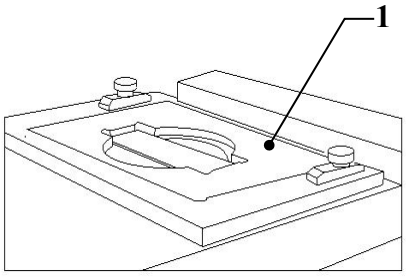
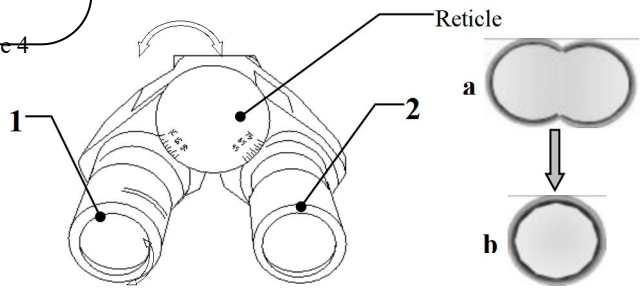


Image 4

2. Reset diopter adjustment ring

Turn the diopter adjustment ring 1 on the left eyepiece t

The diopter "0" position is aligned with the side reticle.



3. Adjust the interpupillary distance

Adjusting the interpupillary distance can eliminate parallax, make the distance between the lens barrels consistent with your interpupillary distance, and make observation more comfortable and clear . When observing through two eyepieces , if the field of view is two intersecting circles , as shown in Figure 4 -a. By rotating the left and right lens bodies 2 , the center distance of the exit pupil of the eyepiece tube can be changed , so that the field of view is a completely overlapping circular field of view , as shown in Figure 4 -b.

4. Place the specimen slice or Petri dish

(1) If observing slide specimens, place the slide directly on the petri dish holder 1 ; if observing the cultured tissue in the petri dish, you need to determine the required petri dish according to the shape and size of the petri dish Holder (please refer to the technical specification table for the specific size of the petri dish). See Figure 5 .

（2）Adjust the moving ruler of the stage and adjust the handwheels 1 and 2 , so that the observed area is located at the front of the objective lens above for easy viewing and adjustment. See Figure 6 .

Image 5

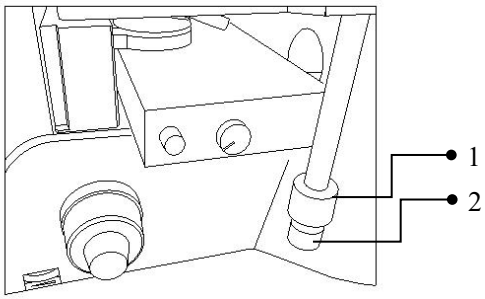


Image 6

5. Adjust the phase contrast device

Pull plate type phase contrast device, please set the pha

At the position of the light hole in the middle. See Figu

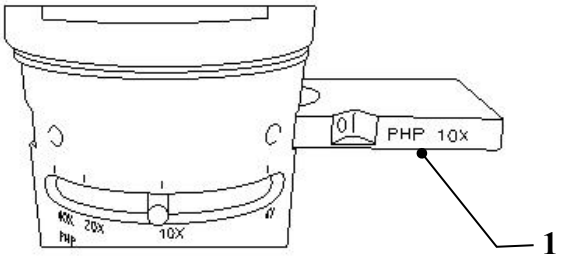


Image 7

6. Coarse and fine handwheel focus

(1) Focus with a 10x objective lens

Rotate the nosepiece 1 to move the 10x objective lens into the optical path (the objective lens will be locked automatically when the rotation is in place). See Figure 8.

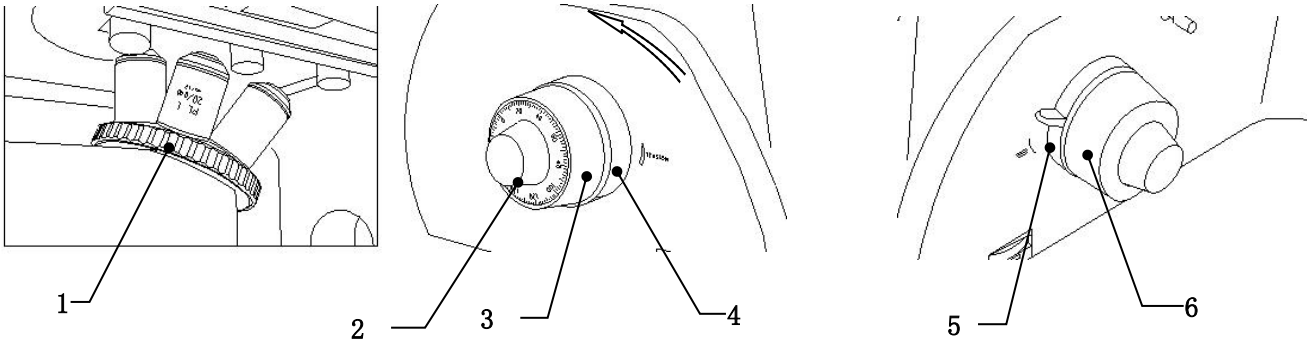
(2) Turn the coarse adjustment handwheel 3 or 6 to raise the objective lens to the highest point. Then observe through the eyepiece, slowly rotate the coarse focusing handwheel, lower the objective lens, and stop rotating the coarse focusing handwheel when the specimen image appears in the field of view. See Figure 8.

(3) Rotate the fine-tuning handwheel 2 for precise focus adjustment to make the specimen image clear. See Figure 8.

(4) Lock the objective lens lifting limit handwheel 5 according to the direction shown in the figure . See Figure 8.

Attention

When you want to observe with a high-magnification objective lens, first use a 10× objective lens to focus and set the limit handwheel. When replacing the high-magnification objective lens, the objective lens can be directly raised to the limit height with the coarse handwheel, and then the fine focus adjustment handwheel can be used for precise focus adjustment.



Image

(5) Coarse handwheel tightness adjustment: Before the instrument leaves the factory, the coarse handwheel 3 or 6 has been preset to a moderately tight position. If you want to adjust its tightness, you can adjust the tightness adjusting handwheel 4. Turning clockwise can make the coarse handwheel turn lighter, and vice versa can make the coarse handwheel turn harder. See Figure 8.

Attention

When the coarse handwheel is turned too hard, it may cause uncomfortable operation.

7. Adjustment of the moving ruler of the stage and the method of loading and unloading

(1) The vertical (Y direction) and lateral (X direction) movement of the moving ruler 1 of the stage is realized by the coaxial longitudinal adjustment handwheel 2 and the lateral adjustment handwheel 3 . See Figure 9.

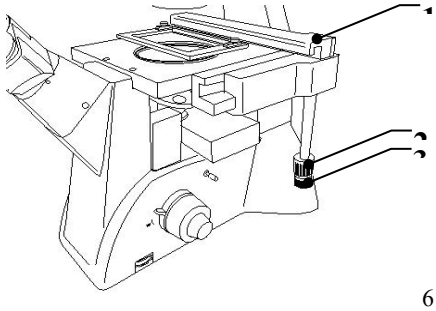


Image 9

Attention

The moving ruler is driven by the transmission belt, and it has an automatic protection function when it moves to the limit position, but when it reaches the longitudinal or horizontal limit position, there will be relative friction between the rotating wheel and the transmission belt, and long-term rotation will wear the transmission belt and the transmission belt. wheel, thereby invalidating the moving ruler of the stage.

1 on the stage needs to be disassembled. Take out the petri dish holder and lower the objective lens (rotate the coarse focusing handwheel to lower the objective lens lifting mechanism). Use a tool screwdriver to loosen the mounting screw 4 at the bottom of the moving ruler , remove the moving ruler 5 , and place it upside down on the workbench. Do not place it on its side or overhead, otherwise it will fall or deform and affect the accuracy of the moving ruler. See Figure 10 for the operation process.

（2）

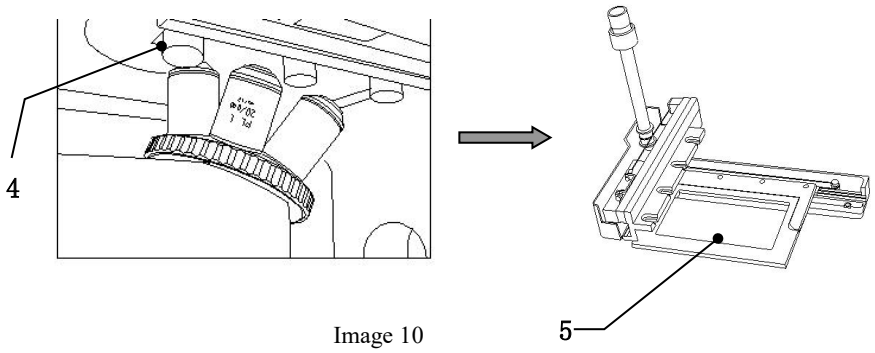


Image 10

8. Diopter adjustment

By adjusting the diopter adjustment ring 1 on the left eyepiece tube , the diopter difference between different users' binoculars can be corrected.

a

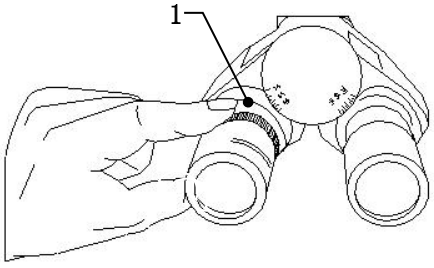


Image 11

1) Turn the 40x objective lens into the optical path, observe the specimen image in the right eyepiece (referring to the eyepiece in the eyepiece tube without the diopter adjustment ring) with the right eye alone, and adjust the focus until the image is clear.

2) Use the left eye to observe the specimen image in the left eyepiece. If the image is not clear, you need to adjust the diopter adjustment ring 1 so that the left eye can also observe a clear image. The diopter adjustment range of this instrument is: N= ± 5 diopters. See Image 11.

Attention

The mobile ruler is a key component for carrying specimens and petri dishes. After disassembly, it cannot be placed on the side or overhead, otherwise it is easy to drop or deform and damage the accuracy of the parts. It should be placed upside down on the workbench.

● Phase contrast observation

Attention

During phase contrast observation, the phase contrast objective lens must correspond to the phase contrast ring plate in the phase contrast condenser, that is, the magnification of the objective lens corresponds to the pull plate scale or the insert plate scale, otherwise the imaging effect during phase contrast observation will be affected.

1. Place the specimen

Place the phase contrast specimen flat on the stage support or directly on the stage. Adjust the focus to make the image of the specimen clear.

2. Phase contrast device adjustment

(1) Take out one eyepiece in the binocular tube, insert the centering eyepiece 2 into the eyepiece tube, see Figure 12-a.

5 and a bright ring 6 can be observed in the field of view of the centering eyepiece , as shown in Figure 12-c.

(3) If the edges of the dark ring and the bright ring in the field of view are not clear, you can adjust the centering eyepiece adjustment ring 1 to make the edges of the dark ring and the bright ring clear.

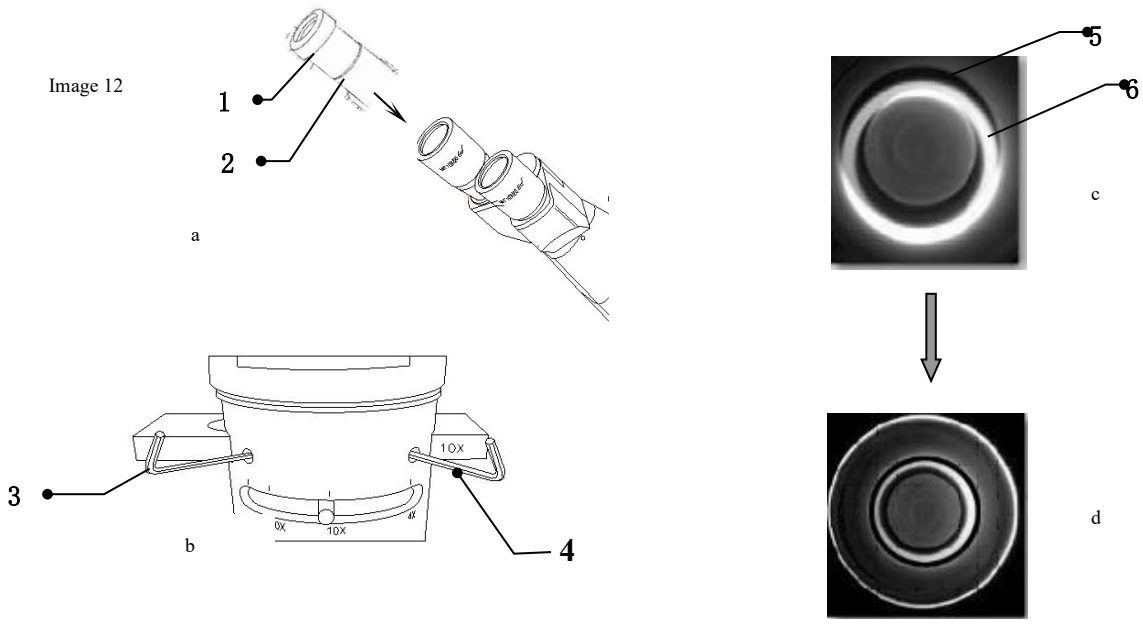
(4) Phase contrast observation requires that the centers of the dark ring and the bright ring coincide. If the centers of the two rings do not coincide, as shown in Figure 12-c, you need to adjust the center of the phase-contrast pull plate. The hexagonal key 3 can be used to adjust the turntable phase contrast; the adjustment of the draw plate can be realized by adjusting the centering screw 4 of the phase contrast draw plate . After the adjustment is completed, it is shown in Figure 12-d.

(5) After the phase contrast device is centered, the centering eyepiece can be taken out and reinserted into the observation eyepiece.

Attention

When switching phase contrast objective lenses with different magnifications for observation, it is necessary to re-center the phase contrast device, otherwise the effect of phase contrast observation will be affected.

Image 12



● Fluorescence observation

The modular design of the LED epi-illumination system uses LEDs as the excitation light source, no need to adjust the optical path during use, and it can be used immediately after installation. During fluorescence observation, turn off the bright field light source on the upper part of the microscope.

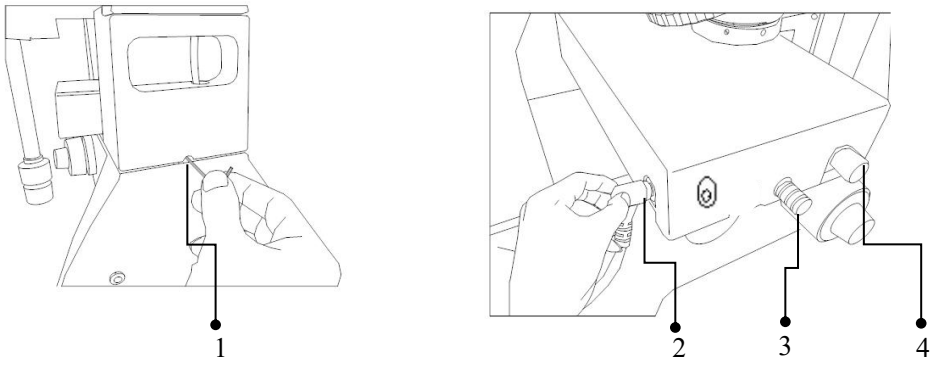


Image 13

1．Fluorescence module fixing screw, put the module into the module slot on the microscope and tighten the fixing screw.

2．Module power input interface, connect the supporting power adapter.

3．The excitation module switches the lever, which can switch between bright field (O), ultraviolet excitation (U), blue excitation (B), green excitation (G), and several modes.

4．The switch/ brightness adjustment knob can be pressed to turn on or off the fluorescent light, and rotated to adjust the light intensity of the LED light. The minimum brightness is off.

Instructions for use:

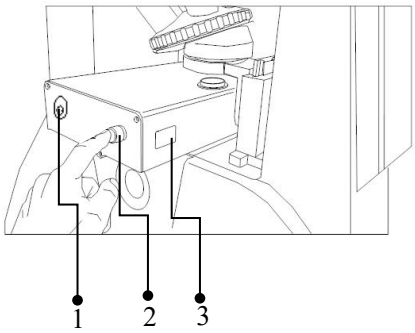


Image 14

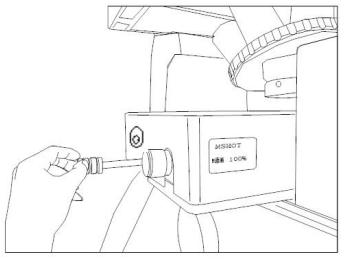
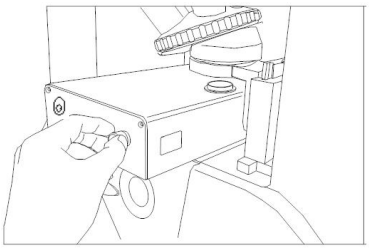


Image 15



1. the module power input interface 1 , and the digital display screen 3 will display " OFF ". Press the brightness adjustment knob 2 once , and the light source is turned on when you hear a "click" . If the fluorescent channel is in the neutral "O" state at this time, the digital display screen 3 will display "E channel———%". As shown in Figure 14.
2. Pushing and pulling the multi- channel switching lever can switch different fluorescence channels (O/B/G/UV) according to the observation requirements , and the digital display screen 2 will display the name of the current fluorescence channel in real time. During bright field observation, the channel needs to be adjusted to the O/UV gear. As shown in Figure 15.
3. Turn the brightness adjustment knob to adjust the fluorescence to a suitable brightness . The adjustment range is from 0% to 100%. If you need to temporarily turn off the fluorescence, just press the brightness adjustment knob. As shown in Figure 16.

Place the specimen, turn on the fluorescence (the bright field light source needs to be turned off), switch the lever to the fluorescence channel to be observed, adjust the appropriate fluorescence brightness, switch the objective lens to be observed, and adjust the focus with the coarse and fine handwheels until the image of the fluorescent sample under the eyepiece is clear .

● Operation of camera equipment

The instrument adopts push-pull to switch between visual observation and photographic camera observation. The photographic camera output port is located at the lower left side of the host. The operation method is as follows:

1. Loosen the fastening screw 1 of the camera output port , and take out the dust cover 2 , as shown in Figure 17 .
2. Install the camera device (adapter) on the output port, and tighten the screw with a screwdriver tool. Turn on the photo camera device to make it work normally.
3. Turn the 10x objective into the light path.

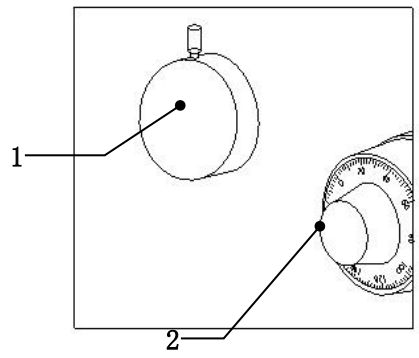
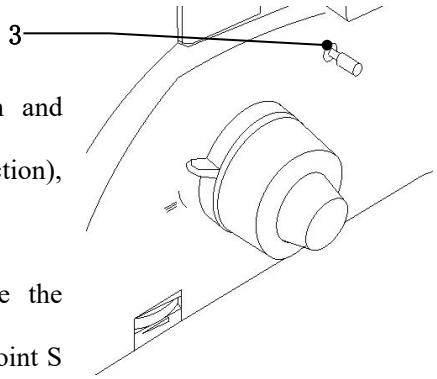


Image 16

Push in the photography/visual switching push rod 3 , visually observe the specimen image, and adjust the focus to make the specimen image clear.

5. Pull out the photography/visual switching push rod 3 , and observe whether the image on the monitor or display screen is clear. If not, please slightly adjust the microscope micro-focusing handwheel to make the displayed image clear.

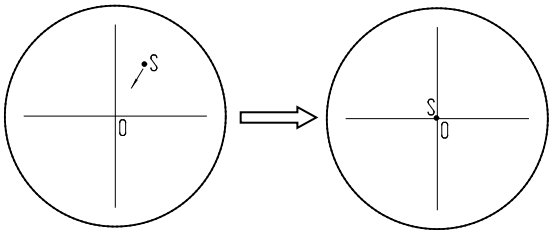


图十七

6. If there are strict synchronization requirements for visual observation and photographic images (consistency between image center and direction), synchronization adjustment is required, as follows:

1) Push the photography/visual switching pusher 3 in, visually observe the specimen image, find a feature point (easy to identify target, such as point S in Figure 18 -a) in the field of view , and move it to In the center of the field of view, if there is a reticle eyepiece, the target can be moved to the intersection of the reticle eyepiece reticle. As shown in Figure 18 -b.

2) Pull out the photographic/visual switching push rod 3 , observe the image on the monitor or display screen, and observe whether the target image calibrated in the previous step is near the center of the display field of view (the offset relative to the center of the field of view is not greater than One -fifth of the diagonal of the monitor or display screen), if the deviation from the field of view is too poor, you can use a screwdriver tool to adjust the three screws on the output port to move the calibration target image to near the center of the field of view.



a Image 18 **b**

3) Move the specimen on the stage, and observe whether the moving direction of the image on the monitor or display screen is consistent with the moving direction of the specimen. If the moving direction is not the same, the direction of the photographic camera device needs to be adjusted. Use a tool to loosen the fastening screw on the output port, rotate the camera device so that the image display direction is consistent with the moving direction of the specimen on the stage, and then tighten the screw.

6. Fuse Tube Replacement

The fuse tube of the host of the instrument is used for the circuit system for transmitted lighting, and the fuse tube 3 is integrated in the power input socket of the host.

1. Turn off the power switch and unplug the power cord.
2. Use a flat screwdriver 1 or other tools to take out the fuse holder 2 as shown in the figure , and take out

   If the fuse tube is broken, replace it with a new one, and reinstall the fuse tube holder on the host

   into the power input socket. See Figure 19 .
3. Reconnect the power cord and verify that the fuse tube is making good contact .

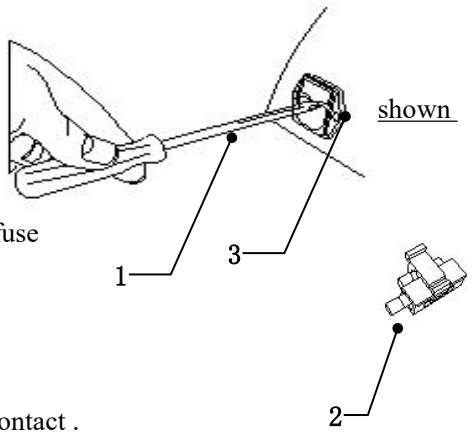


Image 19

7. Instrument care and maintenance

1. The power switch of the main unit is for power supply control. When the observation is completed or the use is suspended, press the switch "O" to cut off the power, so as to prevent the electrical components in the instrument from still working. When not in use for a long time, the power plug should be pulled out from the power socket and all kinds of connecting lines should be kept properly.
2. The instrument should be kept clean. Use clean gauze (or silk cloth, absorbent cotton) dipped in a little ethanol to wipe off the oil on the lens and the body. After it is completely cooled and dry, put on a dust cover.
3. **Clean the lens** : use a blower to blow off the dust on the lens or use a soft brush to wipe off the dust on the lens; heavy dirt and fingerprints can be wiped gently with lens paper or a soft cloth dipped in a little alcohol and ether mixture (mixing the two with about 20-30%, ether 70-80%).

Attention

In general, it is easier to clean the surface of the lens by wiping it inward in the direction shown in the figure.

Wrong Correct

4. Clean the surface of the instrument: Wipe with a clean soft cloth; heavy dirt can be scrubbed with a neutral detergent.
5. Storage: When the microscope is not used for a long period of time, please turn off the power of the instrument, fully cool the bulb, cover the microscope with a dust cover, and store it in a dry, ventilated, clean place without acid and alkali vapor to prevent the lens from becoming moldy.
6. Regular inspection: In order to maintain the performance of the microscope, the instrument should be inspected and maintained regularly.

Attention

Do not use organic solvents (such as alcohol, ether and its Paint thinner) to wipe, so as to prevent the paint on the surface of the instrument from falling off. It is recommended to apply a layer of non corrosive lubricant to the moving part of the microscope before covering the dust cover, and place the eyepiece and objective lens in a container with a desiccant.

8. Common faults and solutions

Fault	Cause of issue	Approach
Electrical system		
No illumination in field of view	The power switch is not turned on	Turn on the power switch
	broken fuse	replace new fuse
	Poor contact of electrical chassis connectors	Check and send professional repair
Optical system and imaging		
The fluorescence module cannot be placed on the microscope card slot, there are black shadows on the edge of the field of view or the illumination of the field of view is uneven, and the complete field of view cannot be observed	Translator not rolled into anchor point	Turn the converter to the positioning position
	Mildew or oil stains on the surface of the objective lens, eyepiece or condenser	Wipe the lens surface or replace
	The objective lens switching dial is not adjusted in place	Adjust the nosepiece to the highest position.
	The fluorescent module is not straightened	The fluorescent module is not placed in place, just push the fluorescent module into the card position on the bottom plate.
	Toggle lever loose	Tighten the tie rod clockwise.
Oil or dust is found in the field of view	Oil or dust on the eyepiece lens	Wipe the eyepiece lens
Out of focus or low resolution	Damaged objective lens	Repair objective lens (requires professional
	There is oil or dust on the surface of the	Wipe objective or eyepiece lenses
	Aperture diaphragm aperture opened too small	Adjust the aperture diaphragm aperture size according to the objective lens magnification
	Objective lens deviated from optical	Turn the converter to the positioning position
	Specimen cover slip too thick or too	Add a cover glass according to the
The focal plane of the image is tilted (one side is bright and the other side is dark), and the fluorescent color is not pure (there is	The lighting bulb is tilted badly	Adjust the position of the lighting bulb
	The specimen is not leveled	Place the specimen flat on the stage and hold it
	The external environment is too bright	Observing Fluorescence in a Dim Environment
Phase contrast observation effect is not good	The phase contrast objective does not	Aligning Phase Contrast Objectives with
	Phase contrast condenser ring plate center deviates from phase contrast	Adjust the center of the phase contrast condenser so that the center of the ring plate

	The placed specimen is not suitable for	Replacing Specimens Suitable for Phase
Computer system		
The image cannot remain clear during observation,	The focusing mechanism appears	Adjust the coarse movement and tightness
	Ineffective focus adjustment	Check and send professional repair
	Stage is loose or tilted	Check and send professional repair
The condenser lifting device cannot be positioned accurately when swinging in and	Loose set screw, making positioning	Recalibrating the set screw
	The locking mechanism is seriously	Check and send professional repair
Stage moving mechanism	It feels too light when moving	Adjust the tightness of the longitudinal
	It feels too light when moving	Adjust the tightness of the transverse conveyor
	Drive belt broken	Replace the conveyor belt (professional