



# Research Stereo Microscope

## Instruction Manual

### Model: BS-3090&BS-3090F(LED)



BS-3090



BS-3090F(LED)

This instruction manual is suitable for BS-3090 series stereo microscopes. In order to ensure safety, give full play to the best performance of the instrument, and make you fully familiar with the use of this microscope, we recommend that you read this manual thoroughly and carefully before operating the microscope, and place the manual close to the workbench which is easily accessible.

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## Company Information

1. Manufacturer: Beijing BestScope Technology Co., Ltd.
2. After-sales service unit: Beijing BestScope Technology Co., Ltd.
3. Address: 4#811, No.26 Financial Street, Shi Jing Shan District, Beijing, China
4. Zip code: 100041
5. Telephone: 010-88747221
6. Website: www.bestscope.net
7. Email: info@bestscope.net

## Contraindications, precautions, warnings

### 1. Warning and attention signs used.

The company provides you with the safest and most reliable instrument, but incorrect use and attention to the manual neglect of these items may cause personal injury and property damage. We hope that before you use the product, please read through this manual is to ensure the correctness of the method of operation. In addition, please put the manual in a convenient place to read it at any time for real-time query. In this manual, safety matters will be emphasized with the following signs, please be sure to observe the signs with these signs instruction of.

Sign	Meanings
 Warning	Ignoring this prompt may result in serious personal injury or even death
 Noted	Ignoring the prompt may cause personal injury or property damage
	Protective conductor terminal
	This mark appears on the nameplate of the appliance to remind you to confirm that the input voltage is consistent with your r the power supply voltage in the area
	Turn on the power. Turn the brightness knob to adjust the brightness of the field of view
	Turn off the power
	The instrument needs to be disconnected from the power source before opening
 <p>MODEL STAND SE4300 INPUT DC12V 2A LAMP LED 2W MADE IN CHINA</p>	Before using the microscope, please read the technical information on the electrical nameplate carefully

## 2. Safety precautions

- (1) Place the microscope where there is no direct sunlight, high temperature or high humidity, dusty, and strong vibration. Make sure that the workbench is flat, level and strong enough. (Weight: The body is about 10.5Kg).
- (2) When you need to move the microscope, hold the transport handle tightly and keep the microscope a gap with workbench so can move it (above).
- (3) If bacterial solution or water splashes on the stage, objective or observation tube, disconnect the power cord immediately, and Wipe off splashes or water. Otherwise, the instrument may be damaged.
- (4) Before turning on the power of the light, make sure that the correct power source is connected.



- (5) Connect the power cord correctly to ensure that the instrument is grounded to avoid lightning strikes.
- (6) Use the special power cord provided by our company.
- (7) This product is stored in a sheltered place, and there is no acid gas, alkali, organic solvent and other harmful substances around.
  - ★For safety, this machine is equipped with a three-pin ground wire plug, and the grounding is protected by a three-pin ground wire plug. Do not use Any adapter plug even reduces safety performance.
  - ★Do not place the equipment where it is difficult to operate and disconnect the power supply.
  - ★If the equipment is not used in accordance with the method specified by the company, the protection provided by the equipment may be damaged.

## Product life and manual revision date

1. Product life: 10 years
2. The revision date of the manual: 2022

## Transportation and storage

### 1. Transportation

The microscope should be stored in any sheltered transportation.

### 2. Storage

The microscope should be stored in a sheltered place, free from acid gas, alkali, organic solvent and other harmful substance.

## BS-3090 Main structure and composition

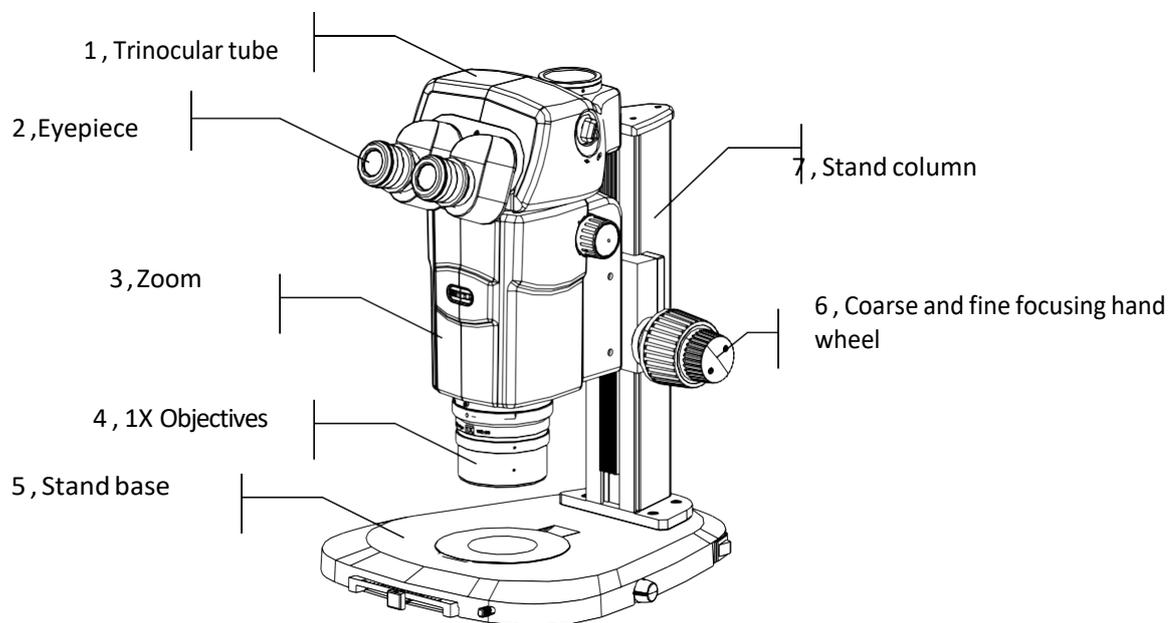


Figure 1

## Application

The BS-3090 apochromatic parallel-light stereo microscope is mainly used in the field of education, factory and enterprise laboratories, medical field, high-quality imaging can be obtained by detecting and analyzing various target structures and shapes, which is benefit to analysis research work.

## BS-3090 Installation

### 1. Preparations before installing and operating the microscope.

- 1) Remove the packaging of the body and all parts and accessories.

The package includes zoom, trinocular tube, eyepiece, 1X objective, stand base, stand column, etc.

And some other parts and accessories, such as dust cover, tools, manuals, etc. All optional accessories will be packaged separately.

- 2) Check that it is consistent with the product you purchased.

### 2. Installation

#### 1) Installation of stand column

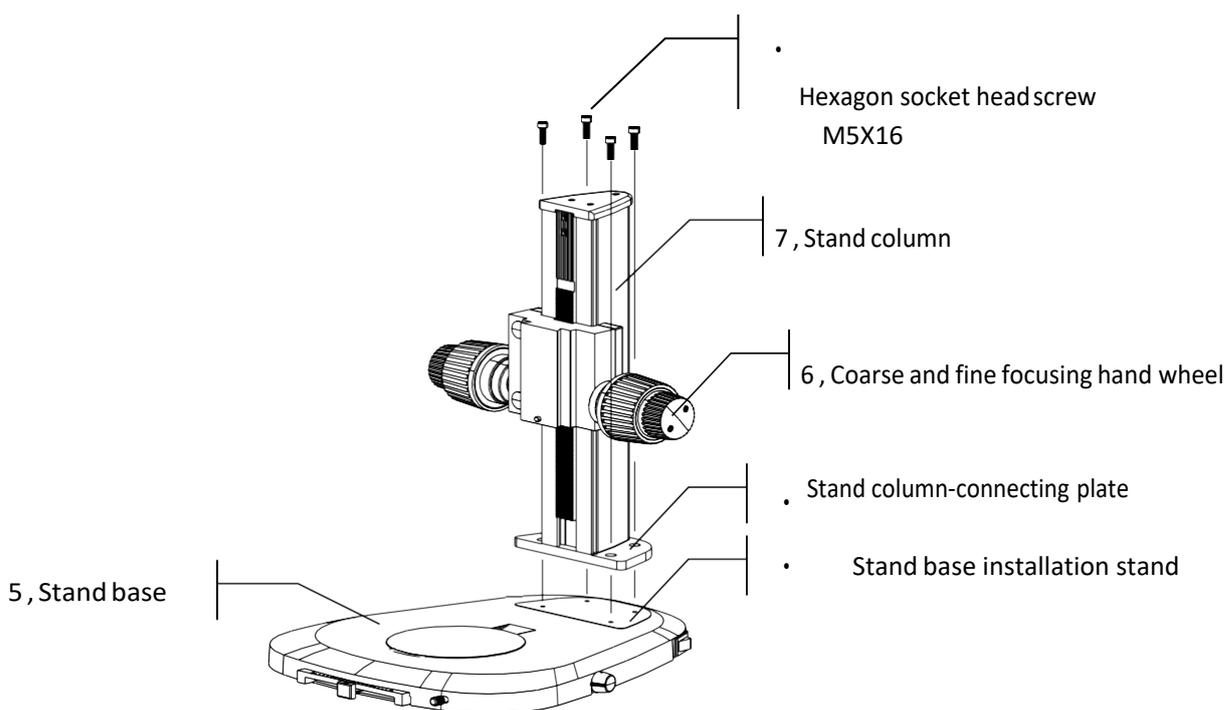


Figure 2

Installation steps:

- ① Put the base of the stand flat on the workbench;
- ② Align the connecting plate of the stand column with the installation table of the stand base;
- ③ Use the hexagon socket head screw M5X16 to connect the stand base and the stand column firmly.

2) Installation of zoom body

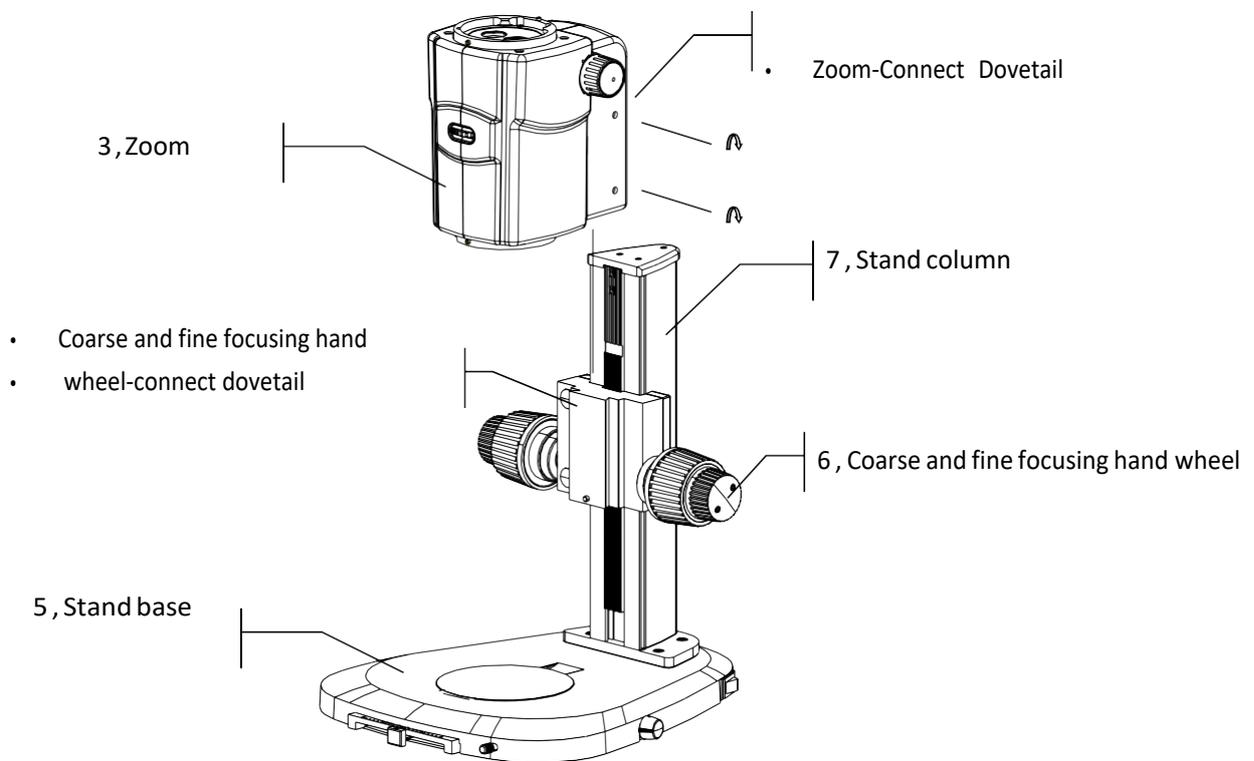


Figure 3

Installation steps:

- ① Insert the zoom body connecting dovetail into connecting dovetail of the coarse and fine focusing hand wheel;
- ② Insert the tool into the zoom to lock screw;
- ③ Rotate the zoom body clockwise to connect the dovetail, then lock screw.

3) Installation of Trinocular tube

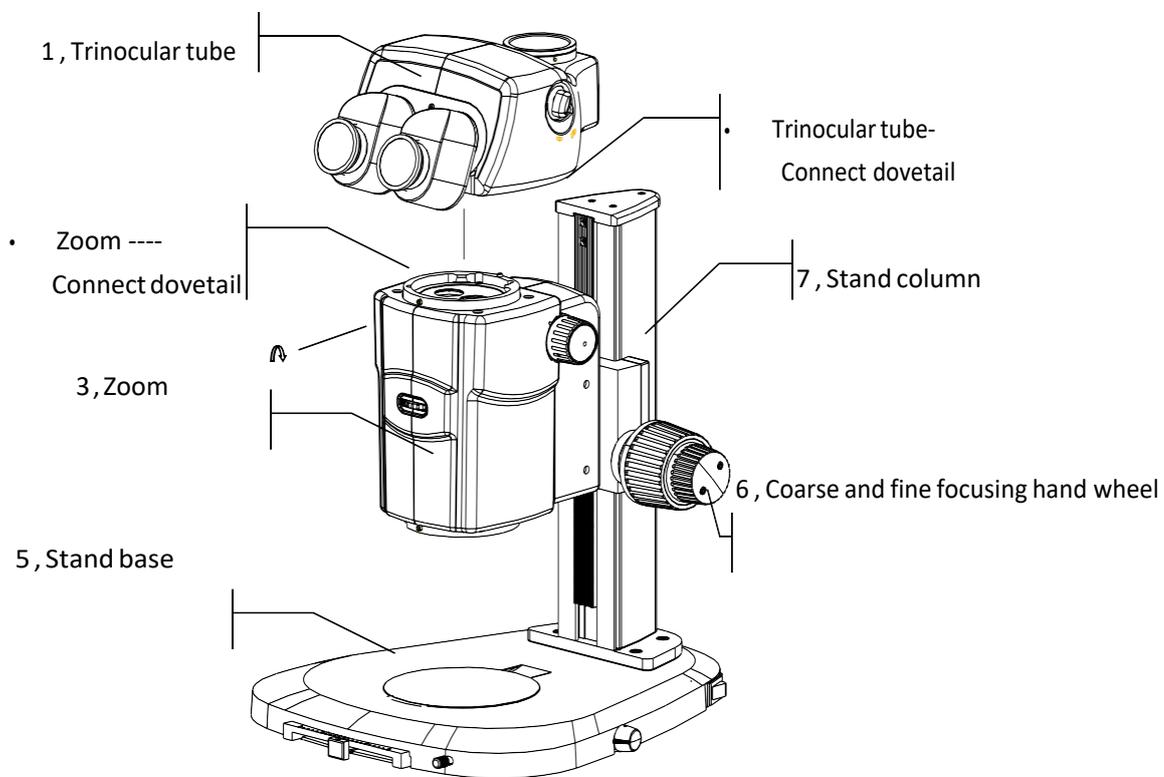


Figure 4

Installation steps:

- ① Connect the trinocular lens tube to the dovetail and snap it into the zoom body connecting dovetail;
- ② Insert the tool into the zoom lock screw;
- ③ Rotate the zoom body clockwise to connect the dovetail then lock the screw.

4) Installation of objective lens

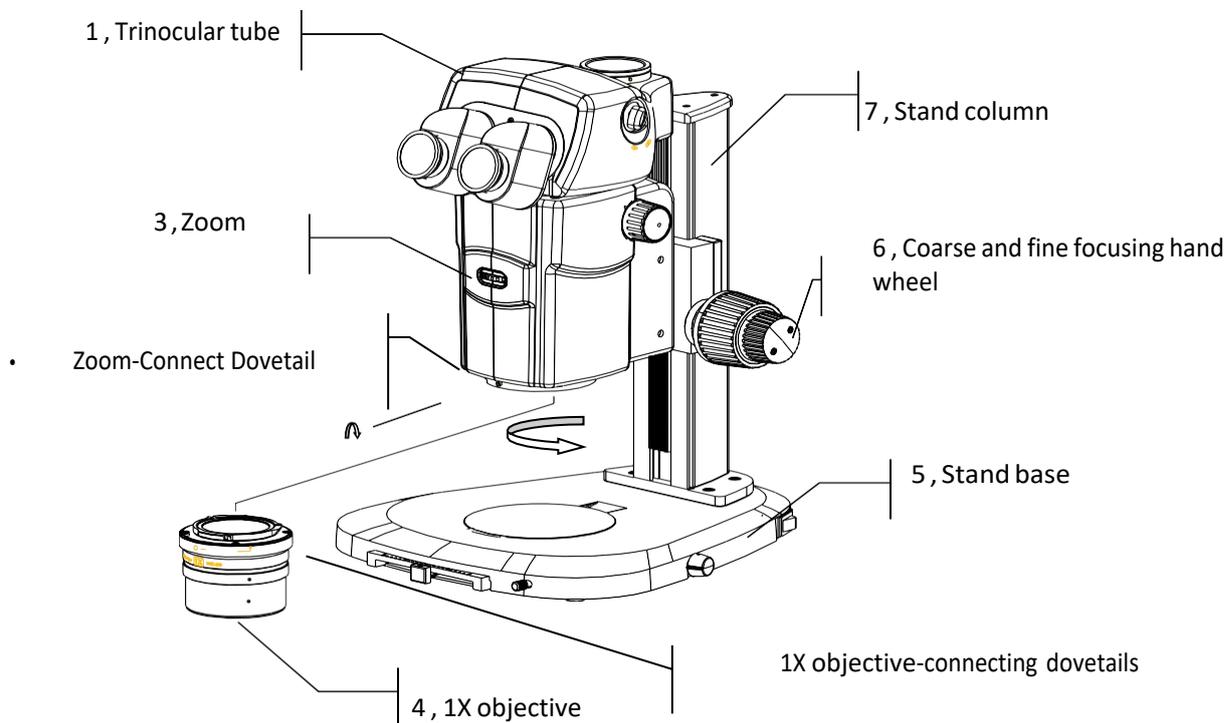


Figure 5

Installation steps:

- ① Insert the 1X objective dovetail into the zoom connecting dovetail facing up;
- ② Rotate the 1X objective clockwise along the axis to position;
- ③ Insert the tool into the zoom then lock screw;
- ④ Rotate the zoom body clockwise to connect the dovetail then lock screw.

**5) Installation of Eyepieces**

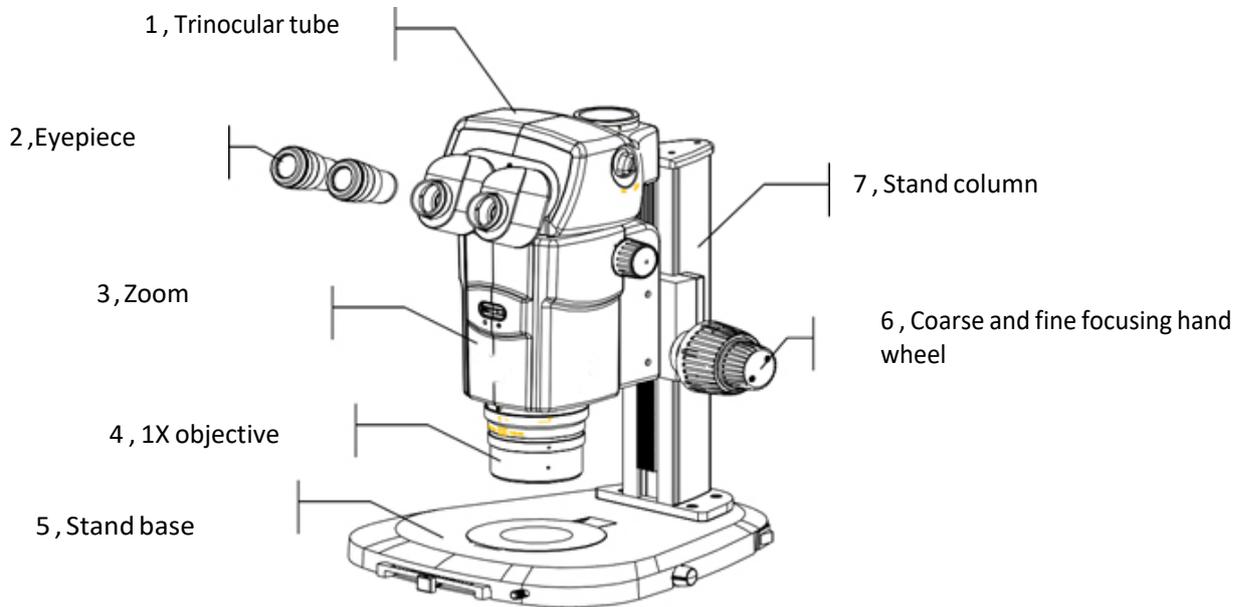


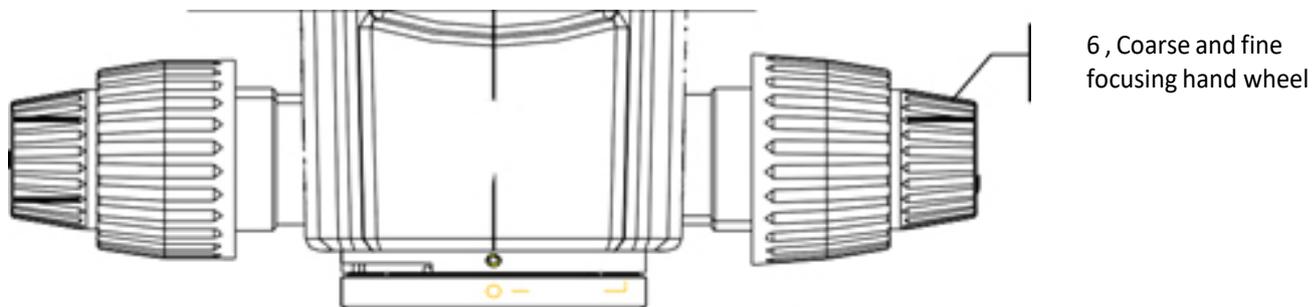
Figure 6

Installation steps:

- ① Remove the protective cover of the trinocular tube eyepiece;
- ② Insert the eyepiece into the eyepiece tube.

## Regulating device and its use

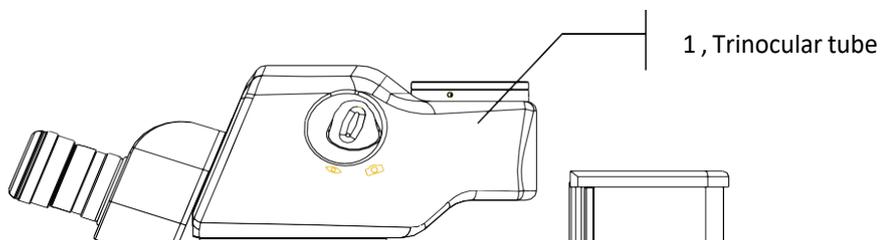
### 1. Microscope coarse and fine focus adjustment hand wheel.



use:

- ① Coarse focus hand wheel to find images;
- ② The fine focus adjustment hand wheel is in focus.

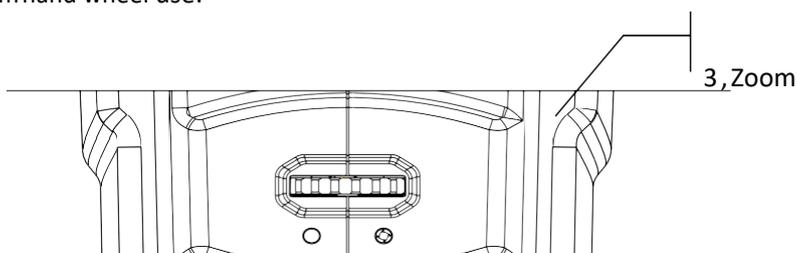
### 2. Trinocular/binocular switching handle.



use:

- ① Dial before switching the handle for binocular observation
- ② After switching the handle, change for trinocular observation.

Diaphragm hand wheel use:



- ① Turn left of the diaphragm hand wheel to increase the diaphragm;

- ② Turn the diaphragm hand wheel to the right to adjust the diaphragm.

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## Basic observation

### 1. Prepare to observe

#### ① Light source

Insert the power supply into the socket, turn on the power supply, turn on the switch, and turn the brightness adjustment knob until the

Need brightness. Under normal circumstances, do not adjust the brightness to the strongest state, otherwise the bulb will be at full load for a long time Working down will shorten the lamp life.

#### ② focusing

##### A. Check working distance

The distance between the focus plane and the bottom surface of the zoom lens barrel is called the working distance. Move the bottom surface of the zoom lens up. The distance is as large as set at the working distance position, which can facilitate focusing. The working distance varies with different objective lenses.

##### B. Focus on the specimen

Turn the focus knob to move the zoom lens barrel up and down to make the focus fall on the specimen.

#### ③ Adjust interpupillary distance

This adjustment needs to be done every time a person is changed for observation, because each person's interpupillary distance is different. Grasp the right eyepiece tube moves at the same time until the two eyes see the same scene.

#### ④ Adjust the diopter

This adjustment must be done every time a person changes, because each person has different vision.

A. Turn the zoom knob to the highest magnification, and turn the focus knob to focus on the specimen.

B. Turn the zoom knob to the lowest magnification, stare through the left eyepiece with your left eye, and adjust the diopter on the left eyepiece. Focus on the specimen with the diopter adjustment ring; then stare through the right eyepiece with your right eye to adjust the diopter adjustment on the right till the ring focuses on the specimen.

C. Repeat steps A and B until the image is exactly on the focal plane during the entire zoom process, even if the zoom is changed large multiples do not affect the clarity of the image.

## 2. Zoom

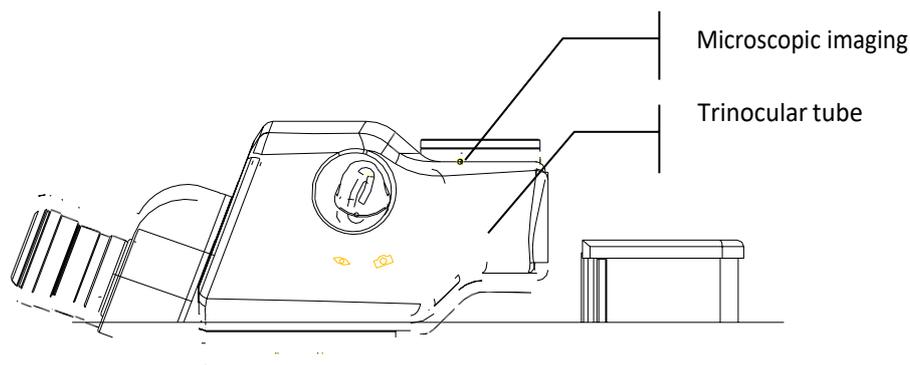
Turn the zoom hand wheel to change the magnification of the specimen image.

### ① Total magnification

There is a zoom magnification on the zoom knob, just multiply the zoom magnification by the magnification of the eyepiece, you can get the total magnification.

## Microscopic photography

### 1. Microscopic imaging of trinocular tube

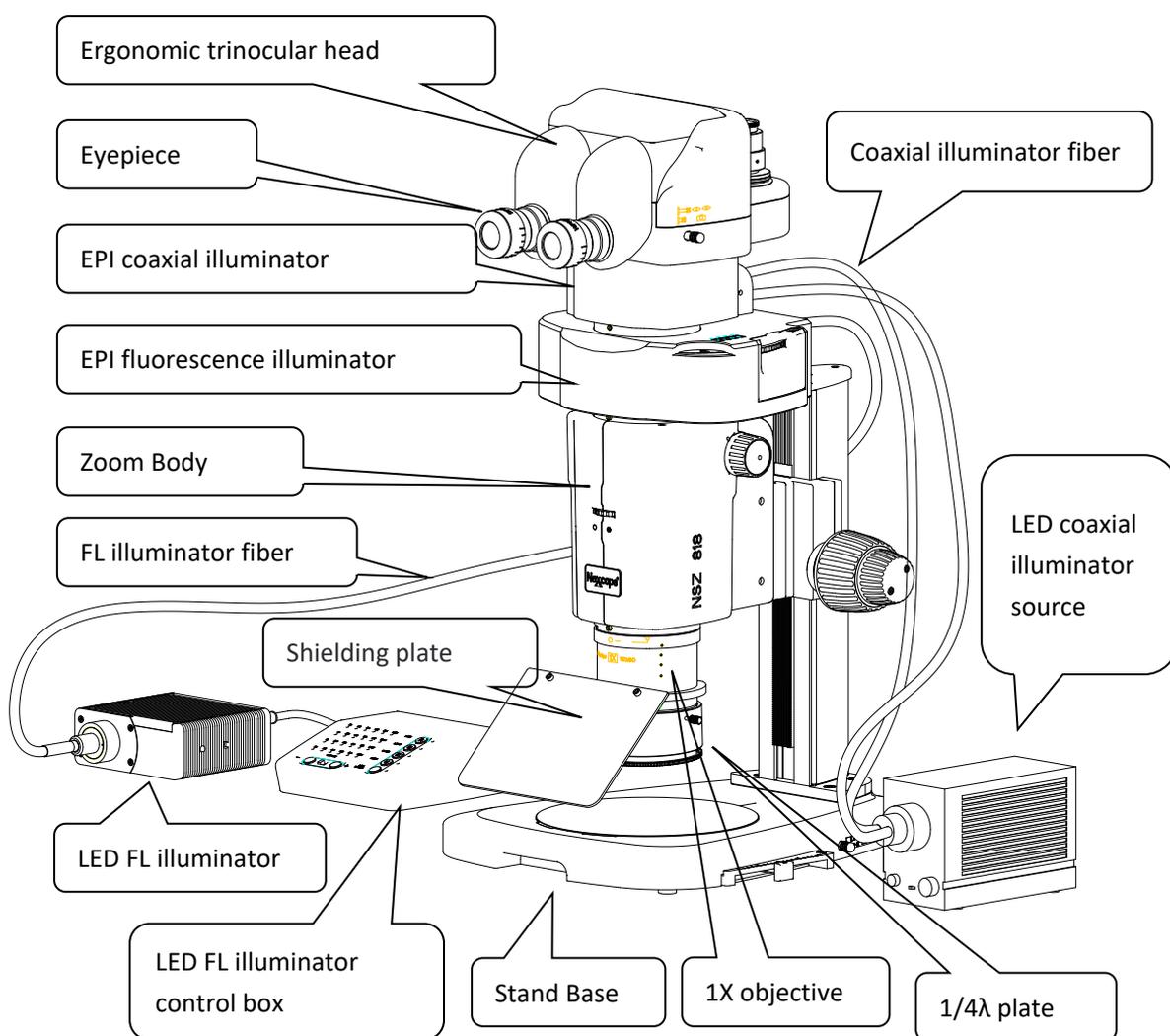


Use:

- ① After switching the handle, change for trinocular observation: 0/100%
- ② Install the C-mount or reducing lens into the microscopic imaging interface.

**BS-3090F(LED) Main structure and composition**

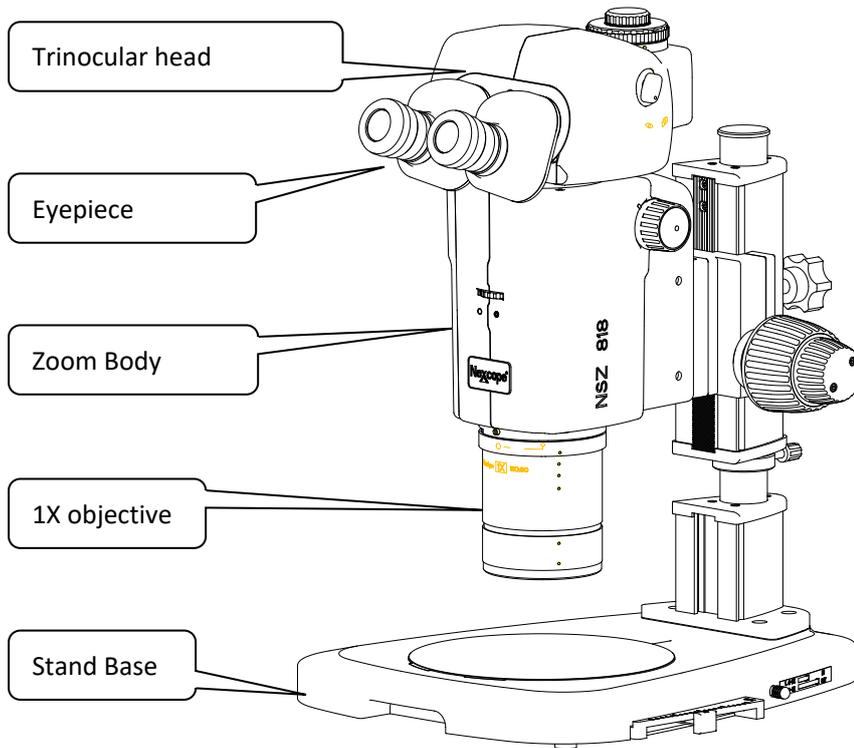
**1. Components.**



**Ltd.**

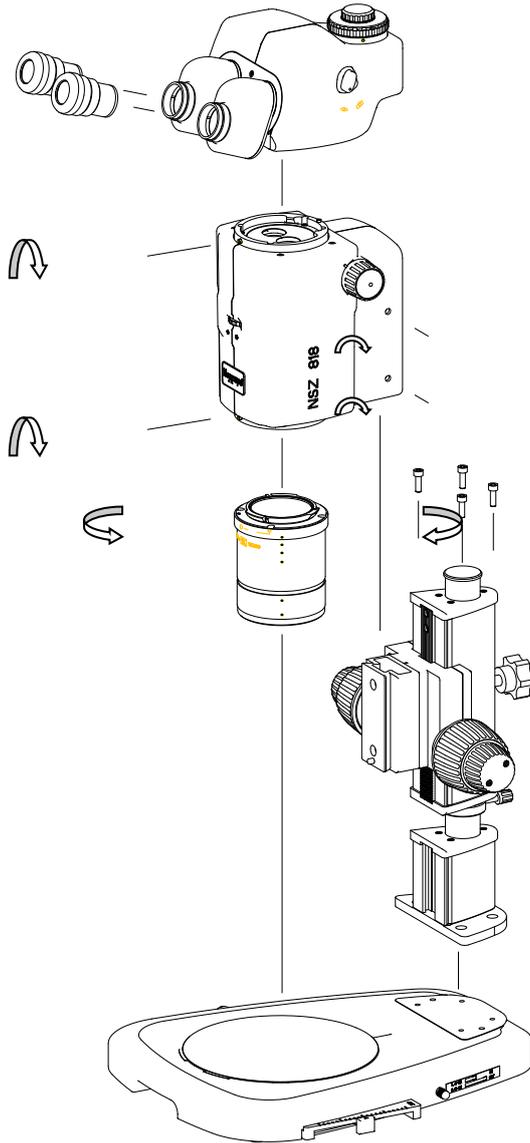
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**2. Compact system.**





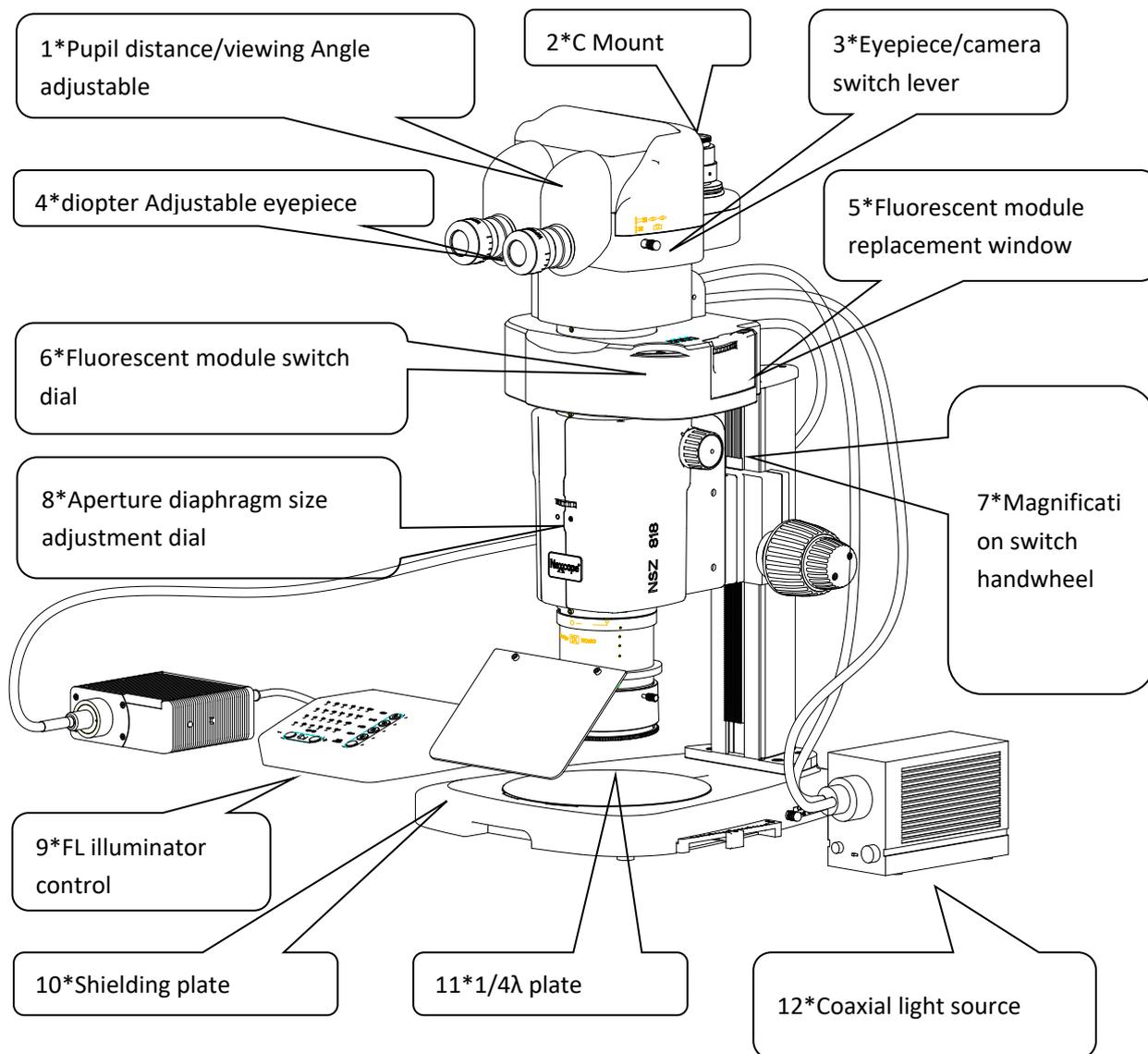
**(3) Compact system assembly**

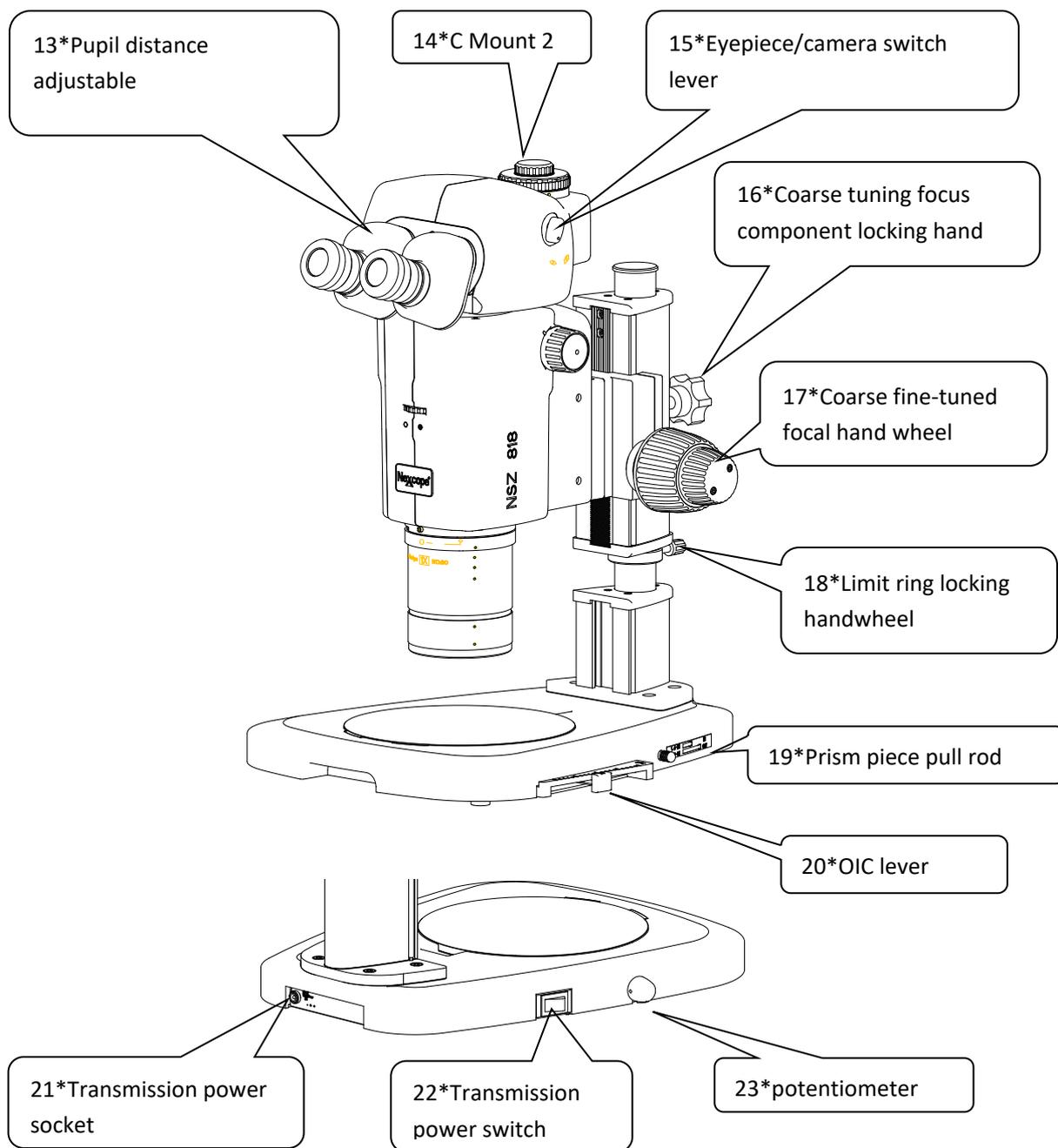


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## 4. Operating instructions

### 4.1 Function Module Description

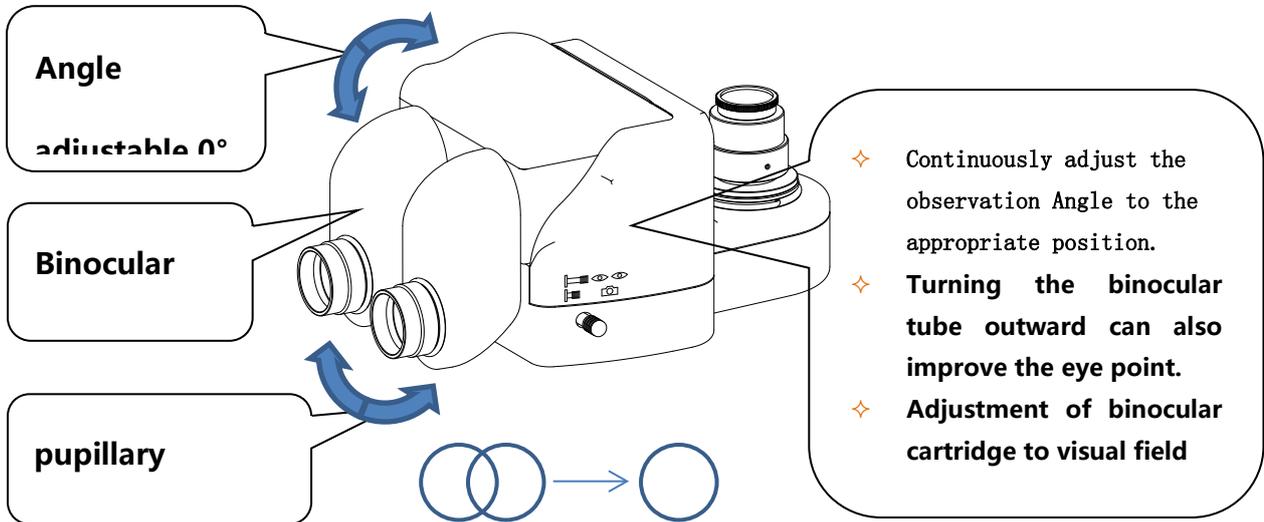




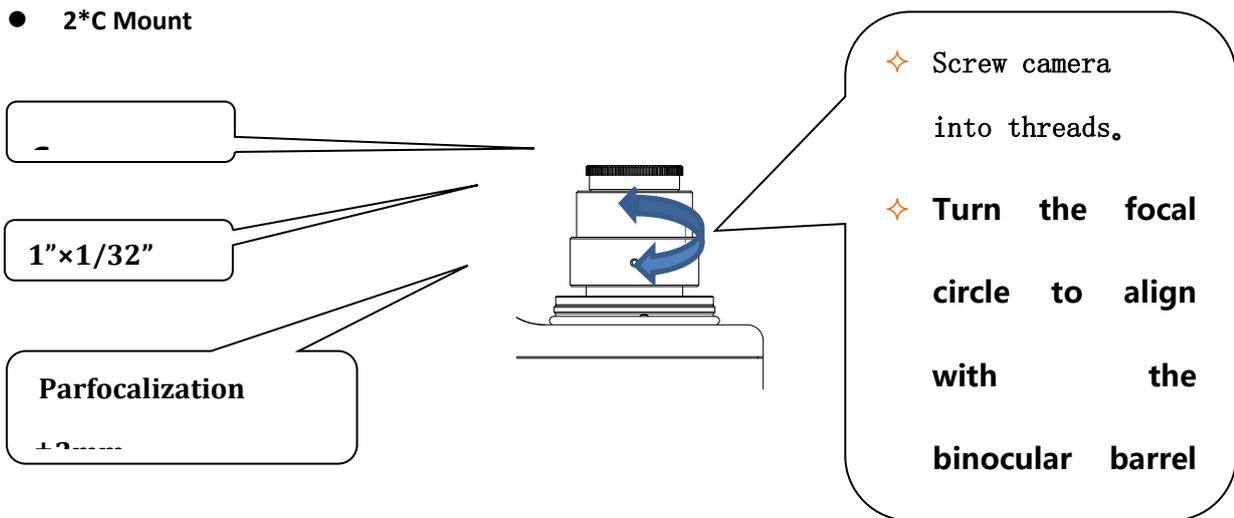
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### 4.2 Function Module Usage

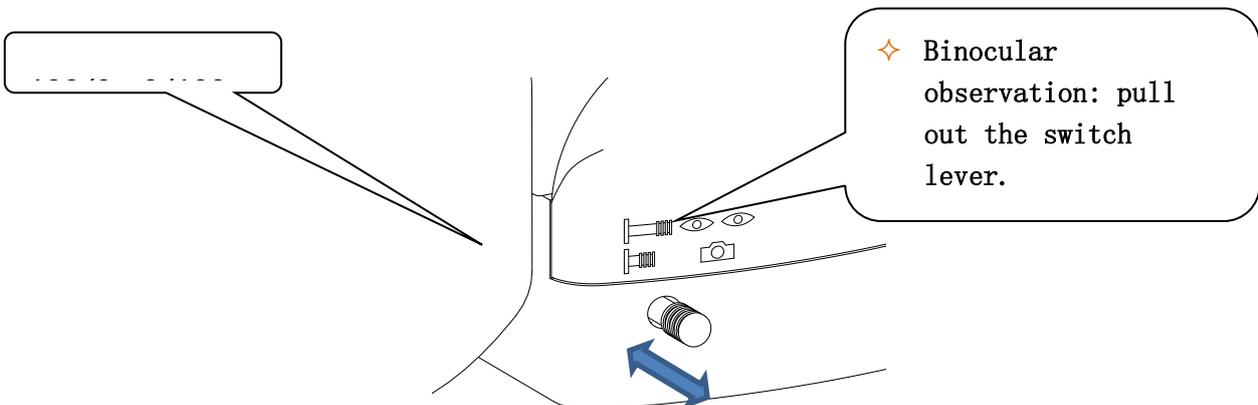
- 1\*Pupil distance/viewing Angle adjustable hinge



- 2\*C Mount

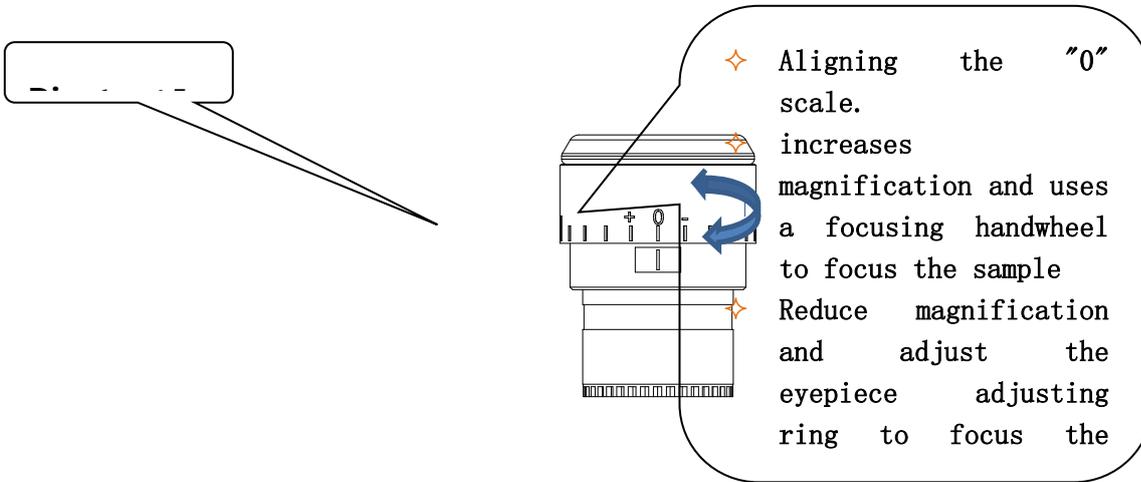


- 3\*Eyepiece/camera switch lever

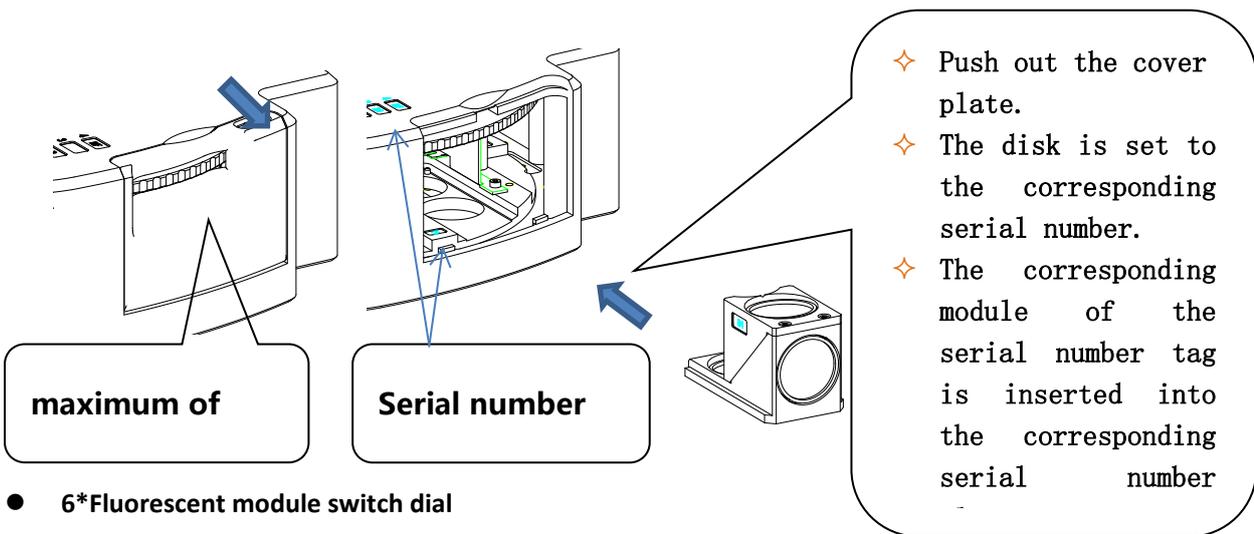


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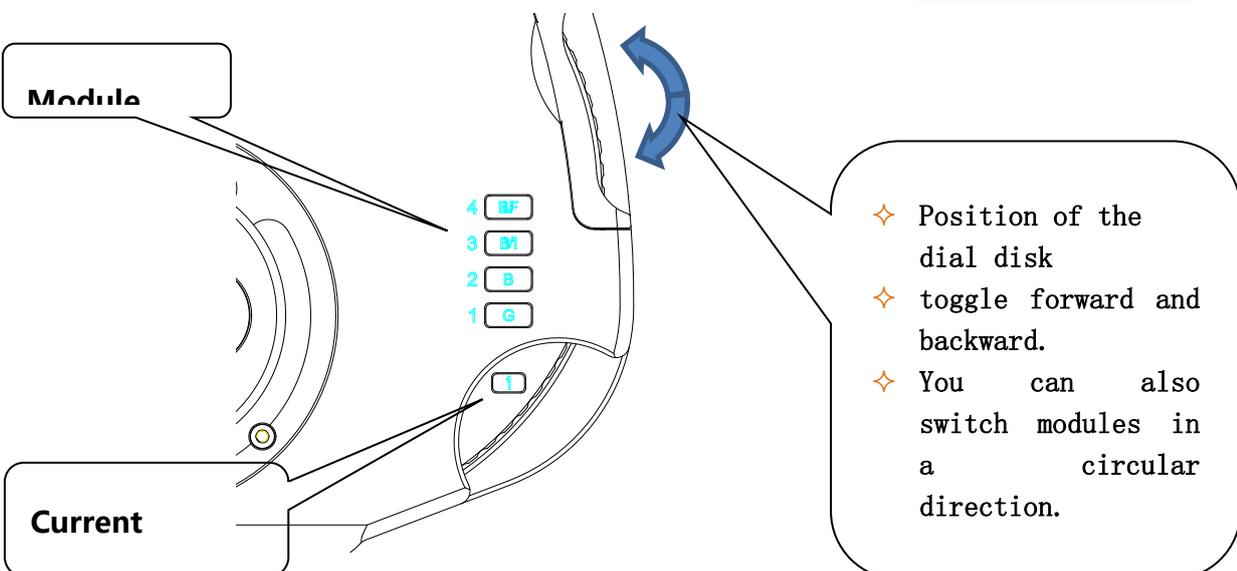
● **4\*Diopter Adjustable eyepiece**



● **5\*Fluorescent module replacement window**

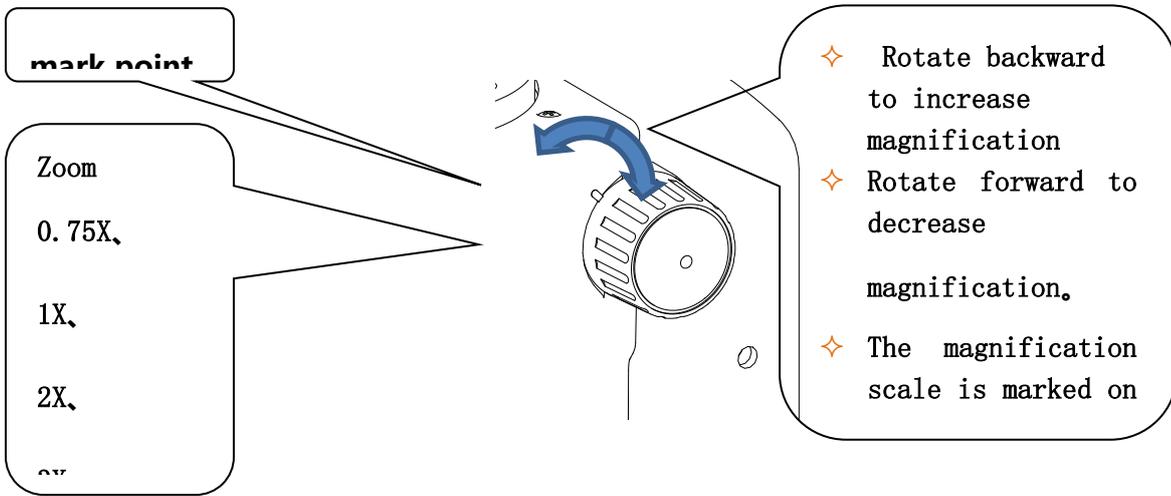


● **6\*Fluorescent module switch dial**

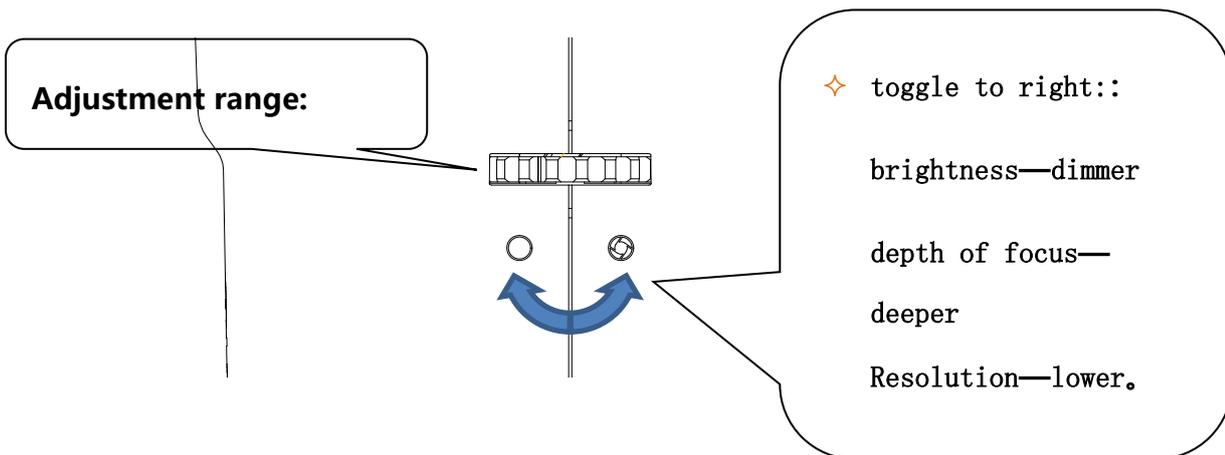


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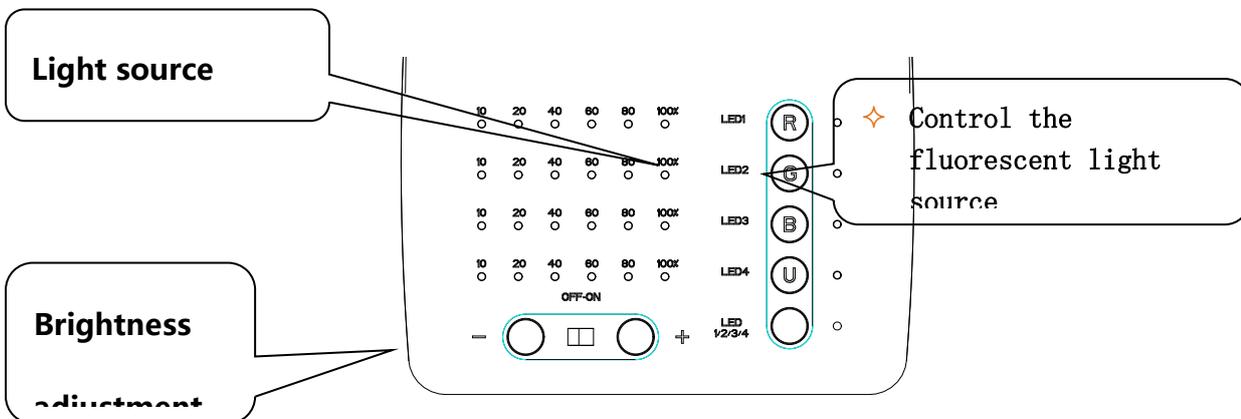
● **7\* Magnification switch handwheel**



● **8\* Aperture diaphragm size adjustment dial**

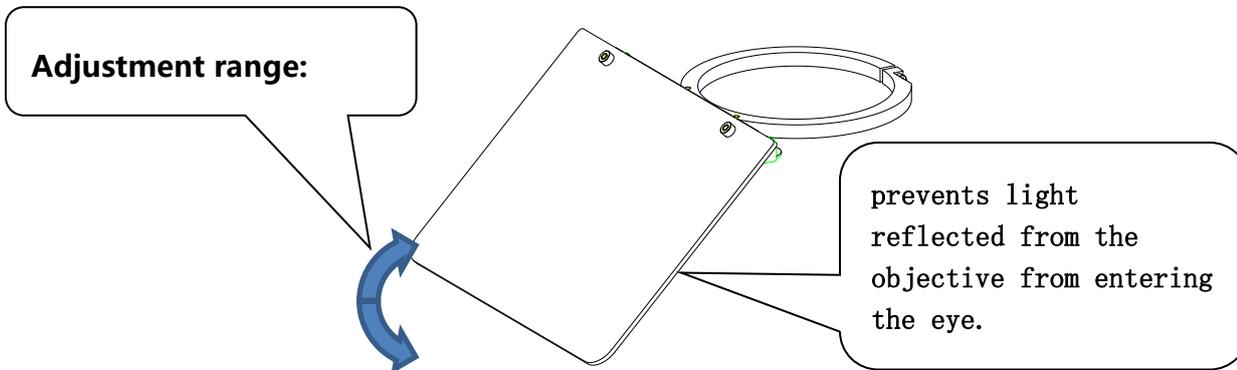


● **9\* Fluorescent light source controller**

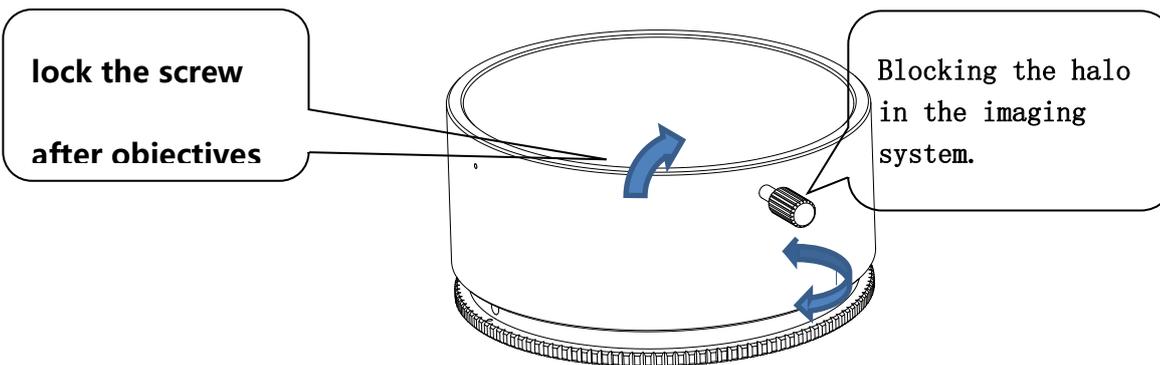


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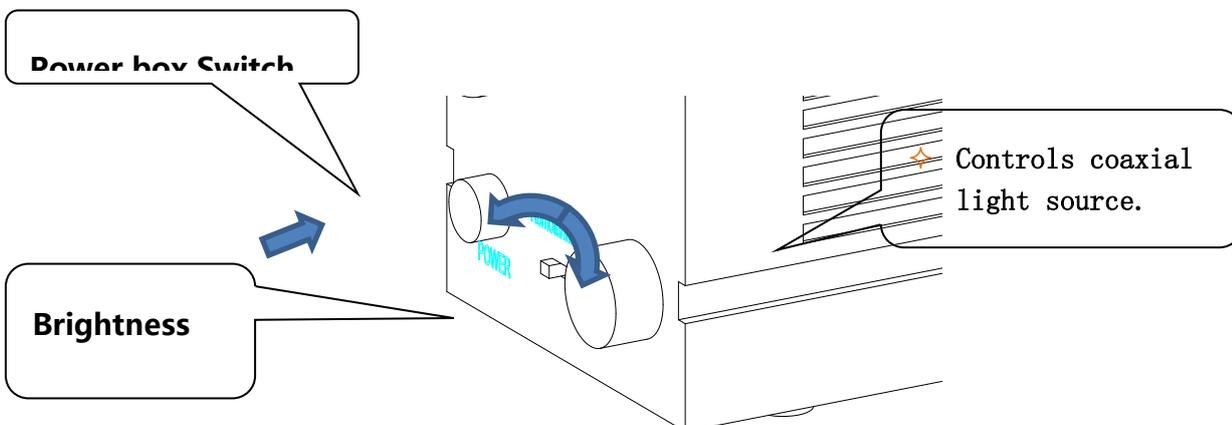
- 10\*Fluorescent shielding plate



- 11\*1/4λparts

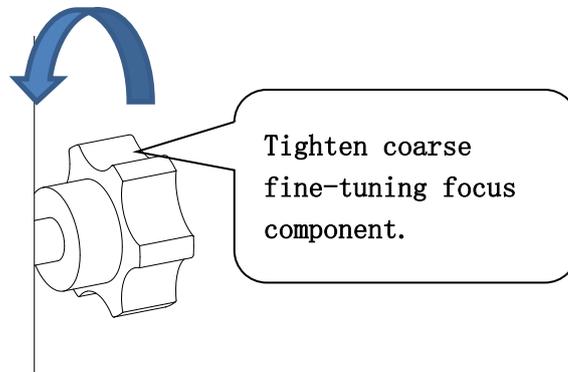


- 12\*Coaxial light source power box

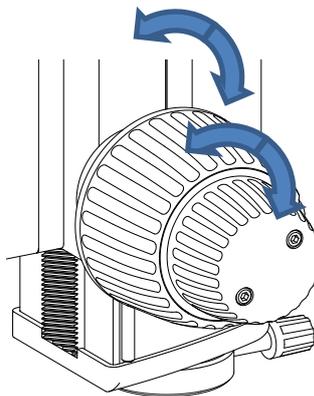


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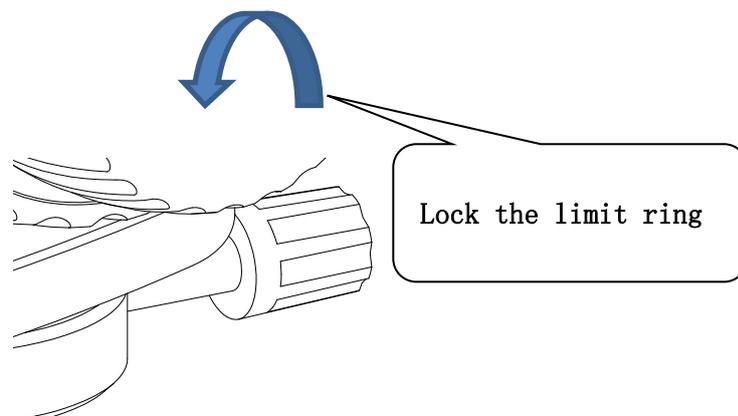
- **13\*Coarse tuning focus component locking hand wheel**



- **14\*Coarse & fine- focusing hand wheel**

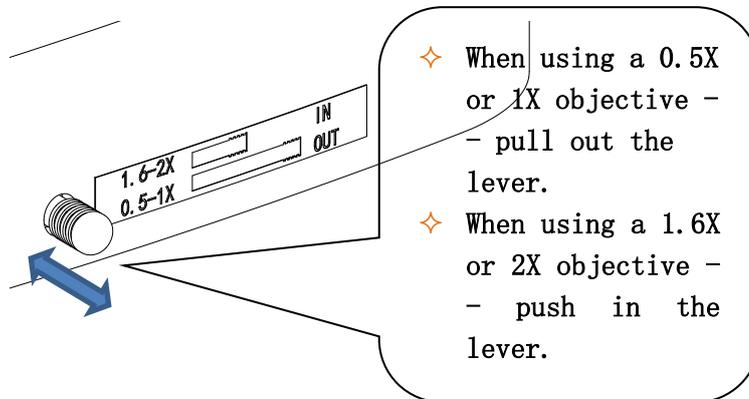


- **15\*Limit ring locking handwheel**

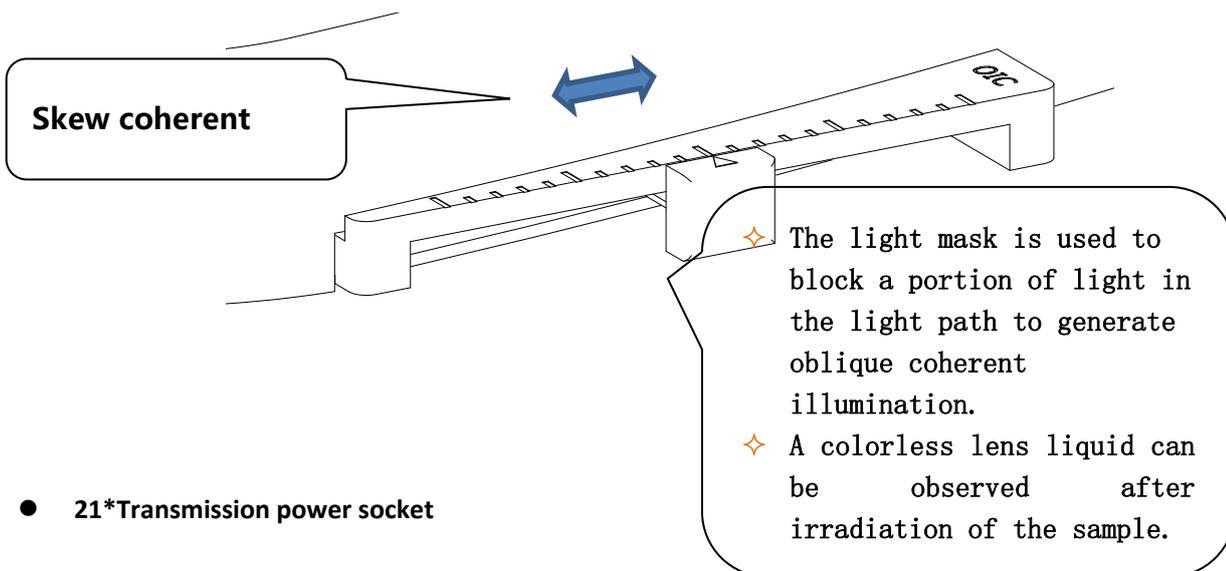


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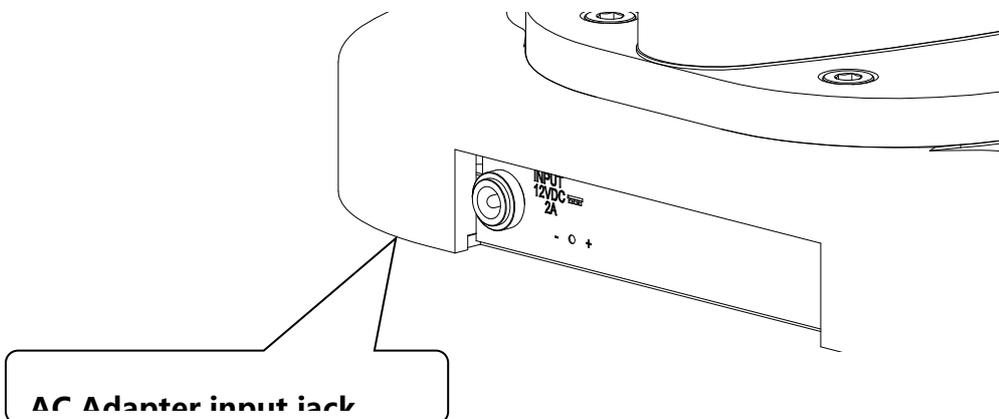
● 16\*Prism piece pull rod



● 20\*OIC lever

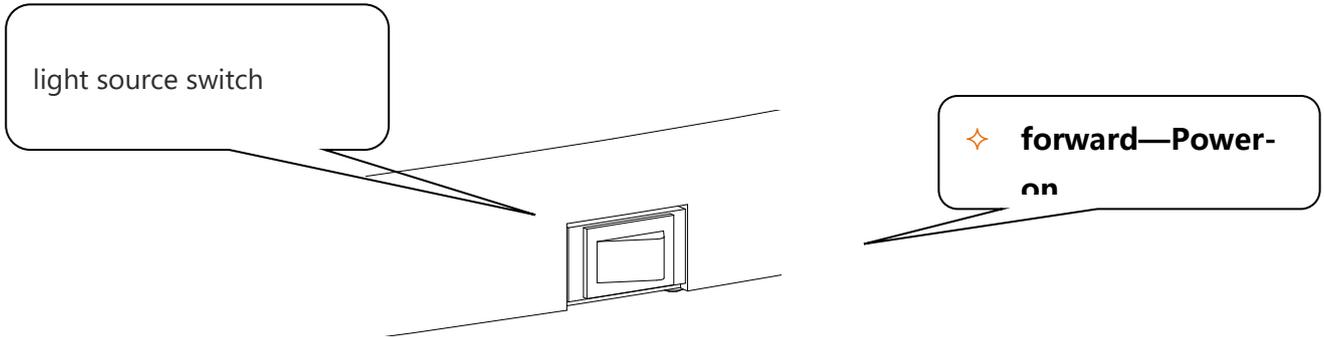


● 21\*Transmission power socket

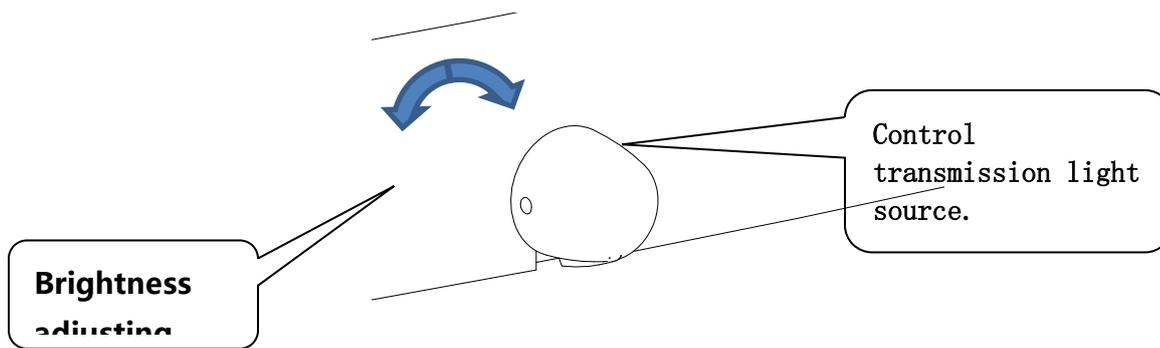


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- 22\*Transmission power switch



- 23\*Transmission light source potentiometer



## Technical specifications

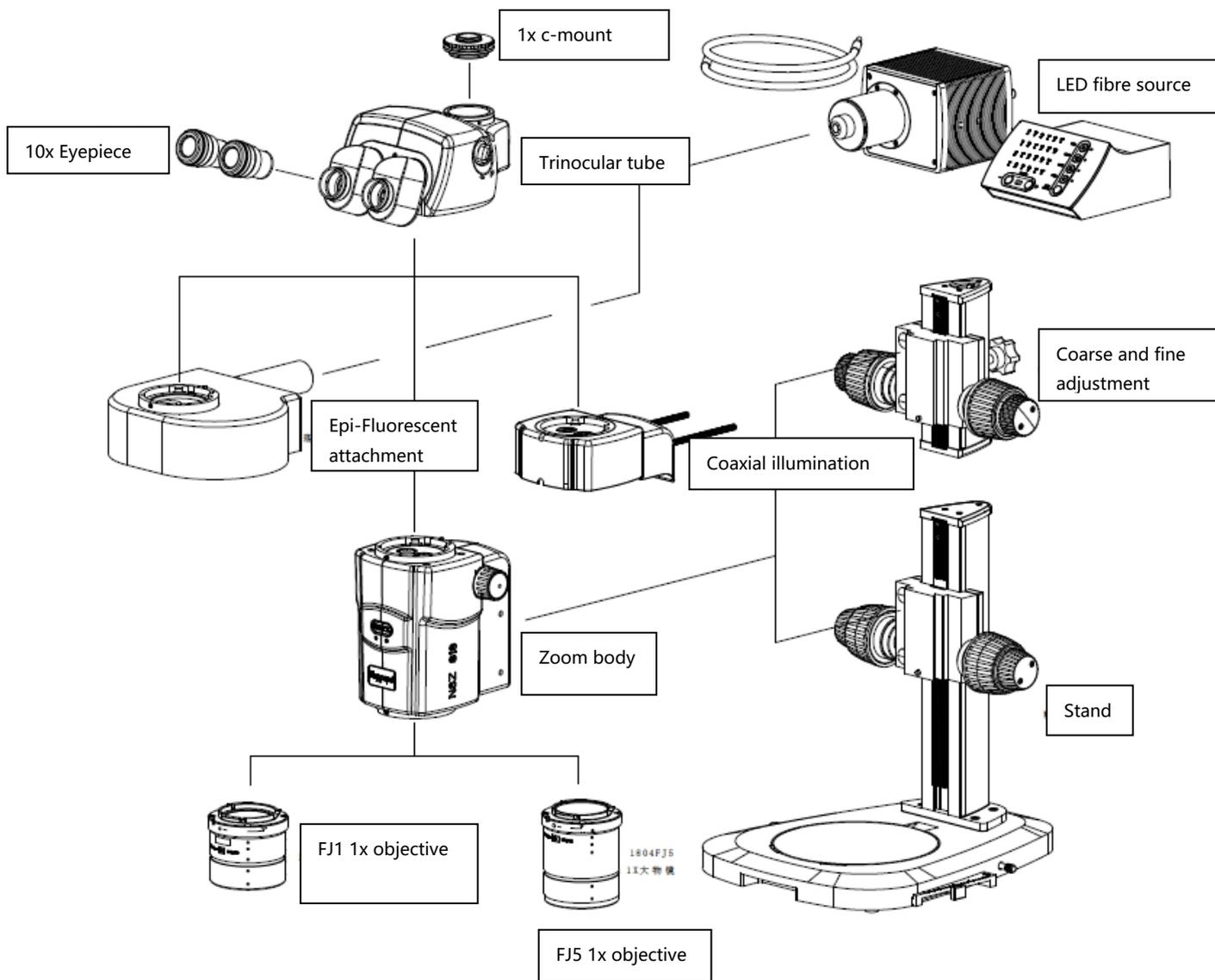
### 1. Main technical specifications

Optical system	Parallel light (zoom type) apochromatic optical system
Manual	Zoom
Zoom ratio	18:1
Zoom range	0.75-13.5X
Objective lens NA, WD	PLAN APO 1X 0.15,60mm
Total magnification	7.5-135X (1X large object, 10X eyepiece)
Eyepiece (FOV mm)	10X (23mm)
Lens tube (eyepiece/port)	Trinocular 20° fixed inclination lens barrel (100/0, 0/100)
Focusing device (stroke)	60+99mm
adapter	DC12V 2A
Base	LED three-dimensional lighting base (OCC built-in illuminator)
Observation method	Bright field, fluorescence, oblique illumination, simple polarized light, dark field
Weight (approx.)	30Kg
Power consumption (approx. )	10W

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Operating environment	<ul style="list-style-type: none"><li>• Indoor use</li><li>• Altitude: up to 2000 meters</li><li>• Ambient temperature: 5°C~40°C (41°F ~ 109°F)</li><li>• Maximum relative humidity: relative humidity at a temperature of 31°C (88°F) 80%, then linearly decrease The relative humidity is 70% when the temperature is 34°C (93°F) The relative humidity is 60% when the temperature is 37°C (99°F) The relative humidity is 50% when the temperature is 40°C (104°F)</li><li>• Pollution degree: Level 2</li><li>• Atmospheric pressure: 80kPa ~ 106kPa</li><li>• Overvoltage category: Class II</li></ul>
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**Optional accessories**



## Troubleshooting list

Under certain conditions, the performance of the device can be reversibly affected by non-defective factors. If it happens

For problems, please check the following table and take appropriate measures. If the problem cannot be solved after checking the entire table, please contact our sales department.

problem	the reason	deal with
a. The field of view is still dark	The socket pins are not connected to the lighting device	Connect correctly
	The light intensity is adjusted too low	Adjust to the right position
b. There is dirt in the field of view	Dirt/dust on the sample	Please use clean samples
	Dirt/dust on the eyepiece	Wipe the eyepiece
c. The two images do not match	Improper interpupillary distance adjustment	Correct interpupillary distance
	Improper diopter adjustment	Readjust
	The left and right eyepieces have different magnifications	Change to the same eyepieces
a. The image is out of focus	Incorrect focus	Adjust the focus to make the double crosshairs and the sample clear see

## Maintenance and maintenance

### 1. Use gauze to gently wipe the glass parts.

If you want to remove fingerprints and oil stains, use a very small amount (proportional It is 3:7) ethanol and ether mixture or xy-lene to wipe.



Warning

★Ethyl ether and alcohol are both extremely flammable. Be careful not to bring these chemicals close to open flames and possible electricity Sources of sparks, such as switching operations of electronic equipment. Try to use these chemicals in a well-ventilated room.

### 2. Do not use organic solvents to wipe the non-optical parts of the microscope.

If you want to clean these parts, please Use a lint-free soft cloth dipped in a small amount of neutral detergent to wipe.

### 3. When using, if the microscope gets wet with liquid, it should be cut off immediately and wiped dry.

### 4. Do not disassemble any part of the microscope.

This will affect the function of the microscope or reduce the performance of the microscope.

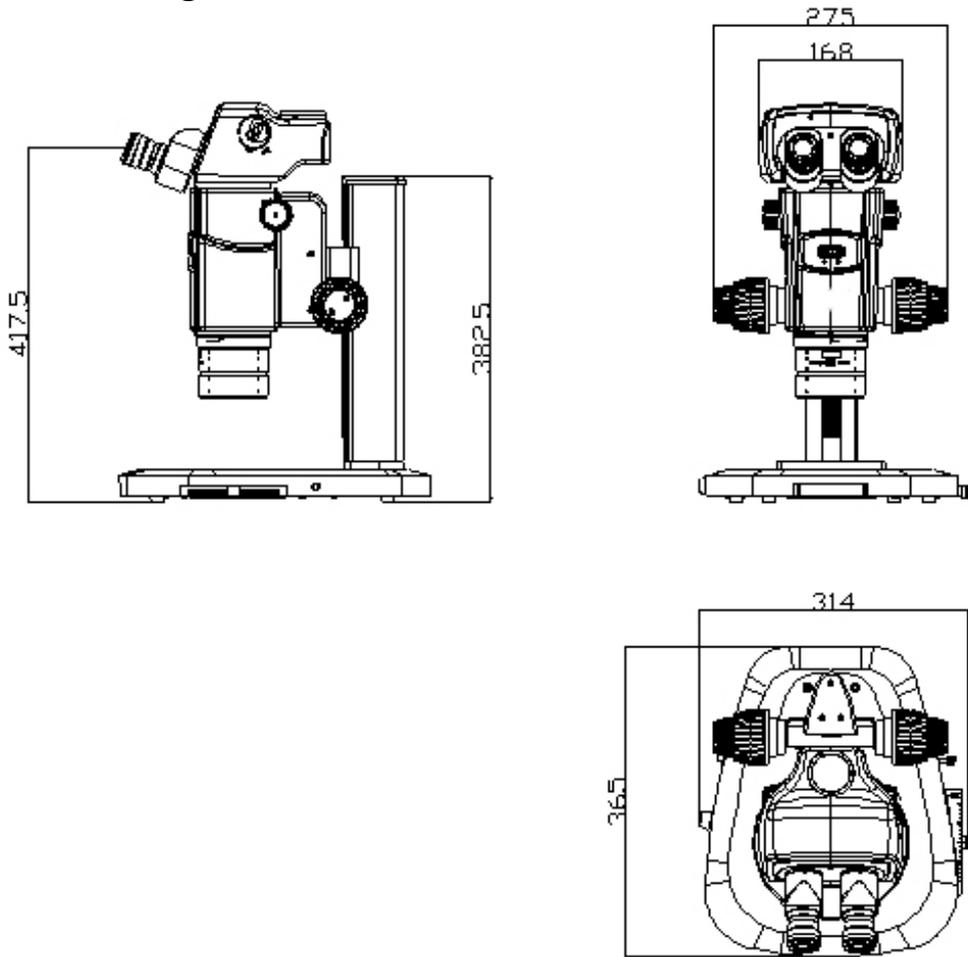
### 5. If the objective lens is not installed, be sure to cover the objective lens dust cover to avoid dust and spilled tissue culture enters the system.

### 6. When the microscope is not in use, it should be covered with a dust cover.

### 7. The inspection of this product and the replacement of parts must be carried out and proposed by the company and its designated agency.

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**Dimensional Drawing**



Unit: mm