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A23.260 Series

Zoom Stereo Microscope

Instruction Manual

To ensure the safety and obtain satisfactory performance, please study this instruction manual thoroughly before start to use your instrument.

Attentions！！

1) Purpose

The series microscope is used only for microscopic observation, not available for other purpose, otherwise result in equipment damage.

2) Disassembly only by the professionals

The microscope has been adjusted before shipping, Unprofessional-person should not disassemble and remove any other parts.

If you have any questions, please contact with manufacturer or local distributor.

3) The proper usage

Supply voltage must be consistent with the rated input voltage marked in the microscope. If beyond this range, equipment will be seriously damaged. Microscope is a precision instrument and should be operated carefully, and strongly rigid operation may damage the equipment. Operators should comply with appropriate safety procedures and assume responsibility for the safe use of this instrument.

4) Use in safe way, prevent burns and fire

When the Instrument power in working, temperature of bulb and collector will rise sharply to meet the heat balance, so pay attention to anti-hot logo, to prevent burns.

Do not use alcohol, gasoline, paper and other combustibles near the instrument, to prevent a fire! !

5) Notes on replacing the bulb

The correct bulb must be used as per the specification of the bulb in the microscope. Use of other bulbs may damage the equipment. Before replacing the lamp, must turn off power switch, and unplug it in order to avoid electric shock and damage to equipment. When replacing the lamp, be careful not to pollution bulb. Light shell surface shouldn't have dust , fingerprints, oil, etc..

The power supply must be cut off before bulb replacement. The bulb must be cooled down completely before proceeding! !

6) Requirements for handling and using environment

Power must be cut off before moving. Be careful not to crush your finger when placed.

This instrument is a precision instrument, and it should be handle with care, severe shock can cause serious damage to equipment-related parts.

The required available environment for using of the equipment:

Indoor temperature: 0 ℃ ~ 40 ℃

Maximum relative humidity: 95%

High temperature or high humidity may cause mildew, fog or dew of the optical components, and make the instrument not work.

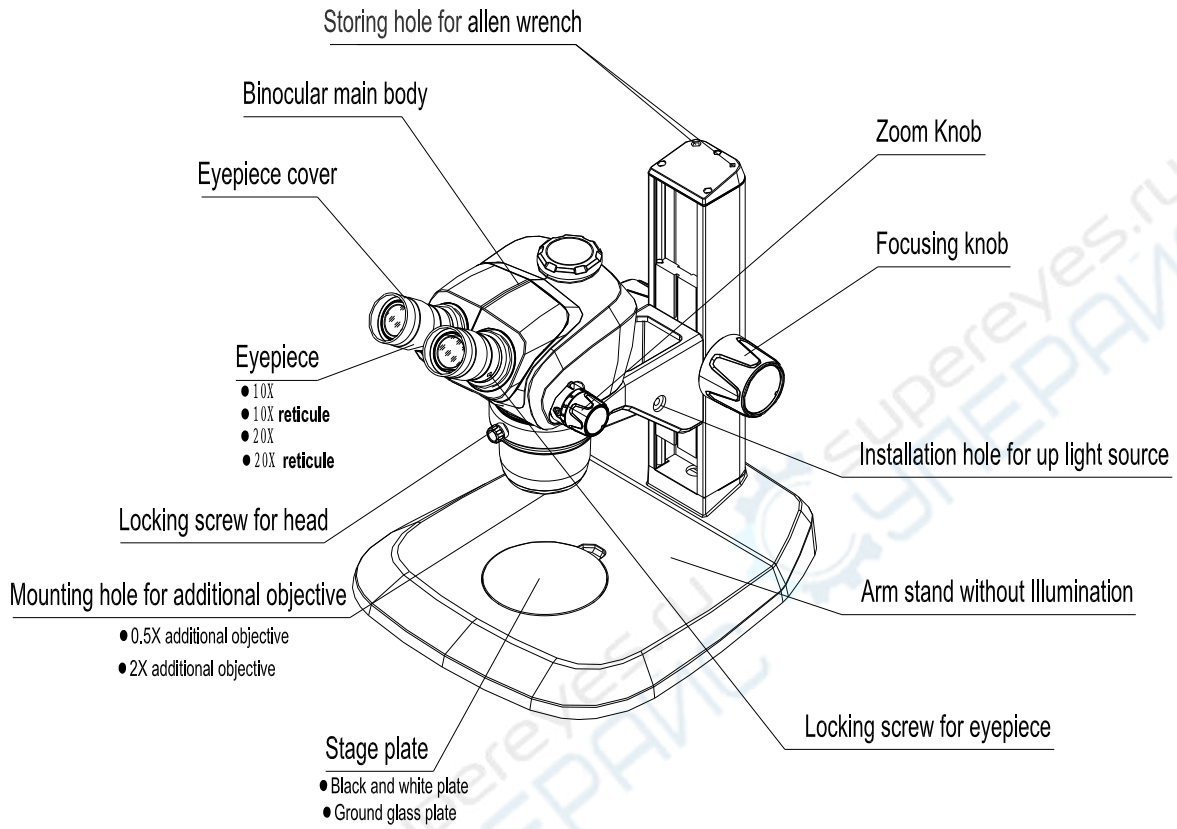
7) For the protection of the environment, please properly handle the microscope packing waste (such as: cardboard, foam, etc.)

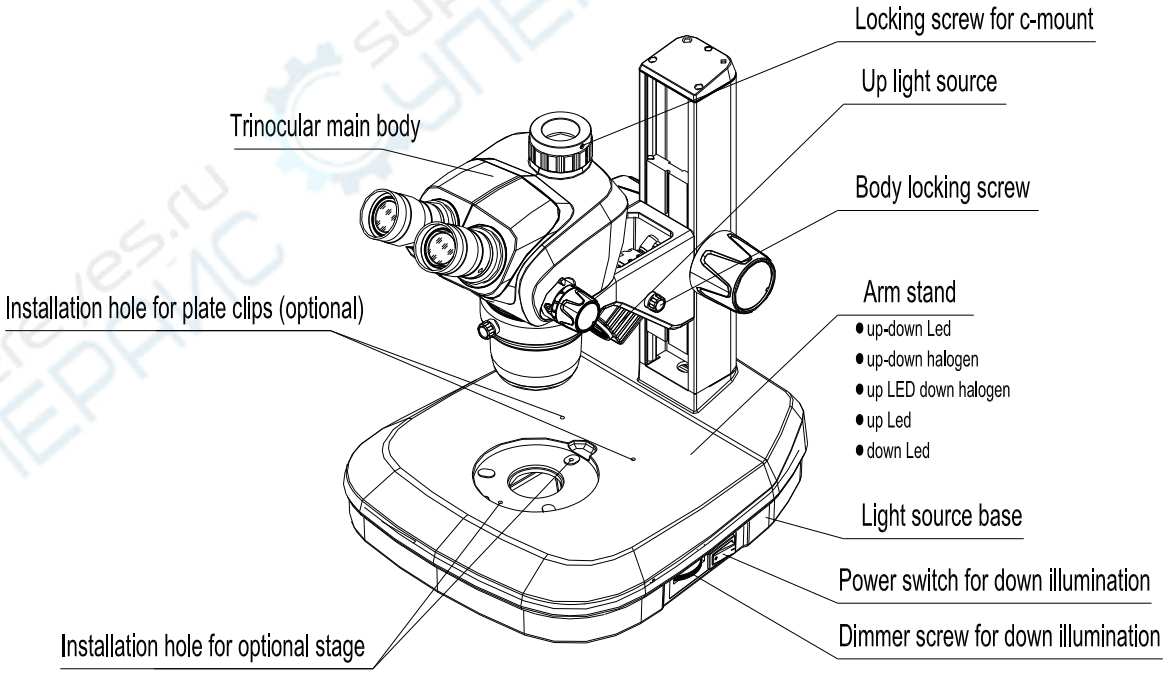
8) Statement

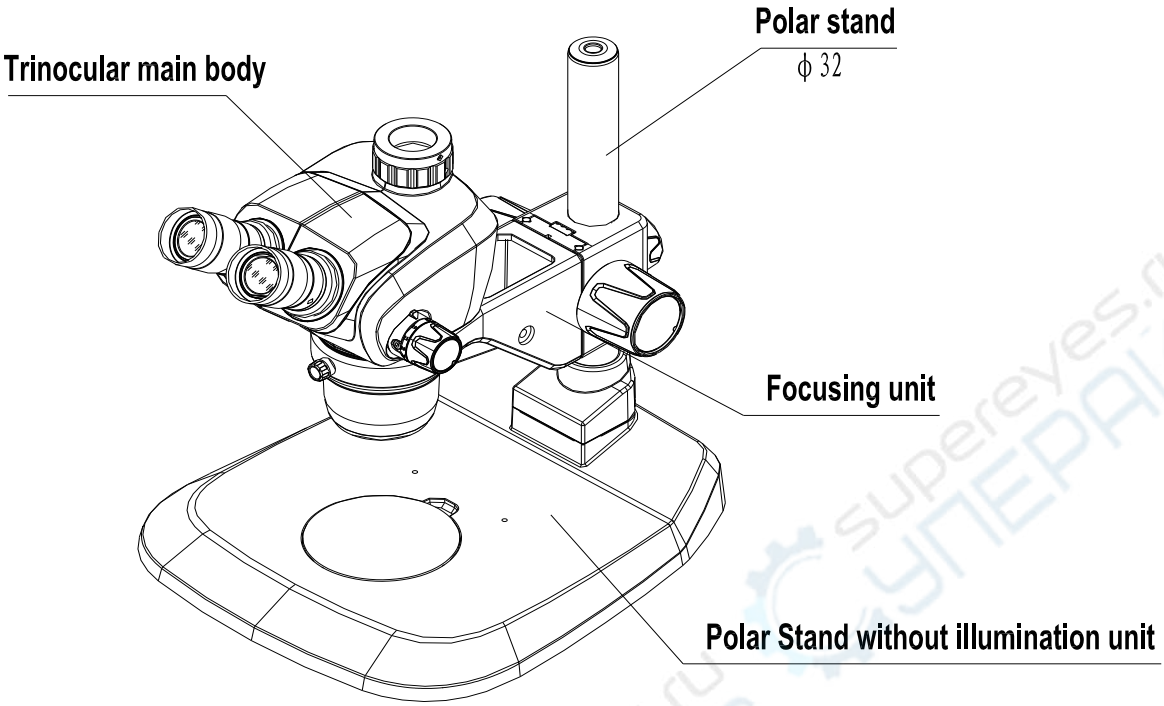
Our company reserves the right to improve product design and outfits.

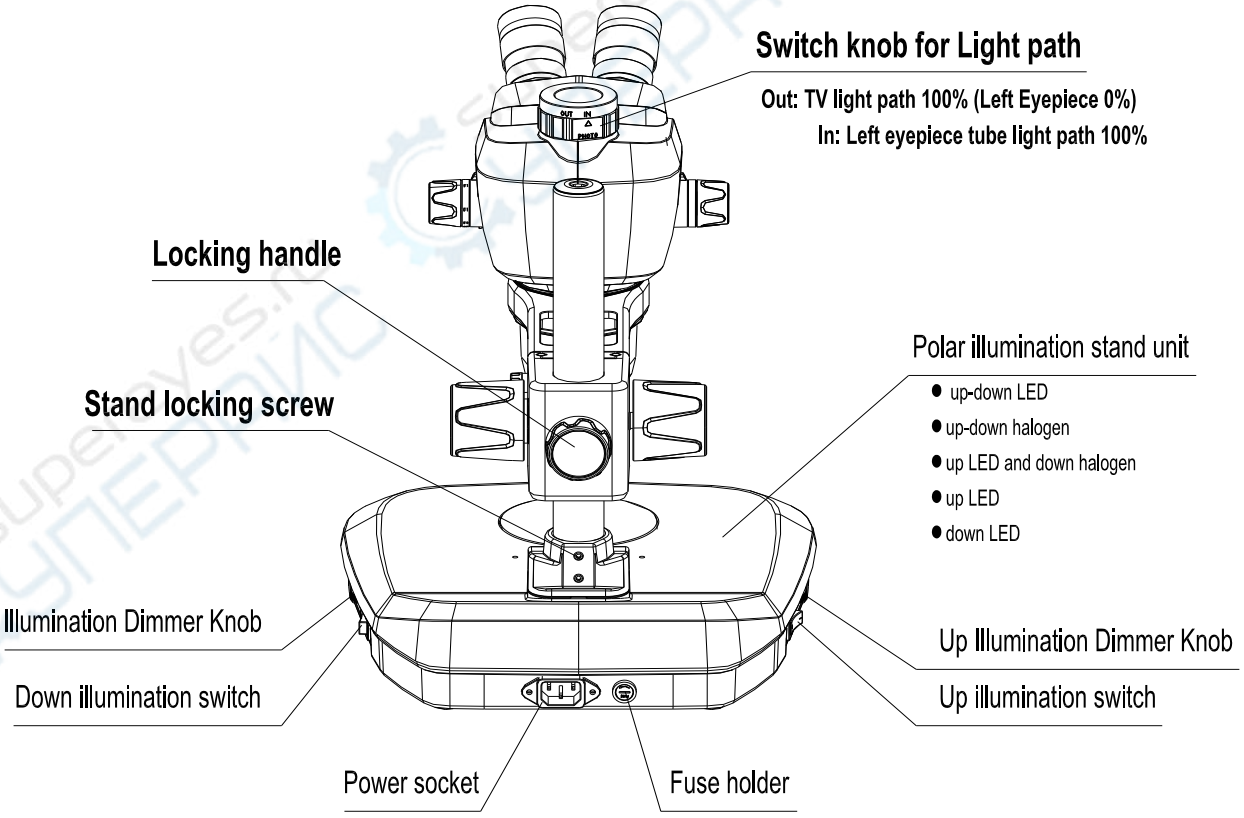
CONTENTS

1. Parts Name


Storing hole for allen wrench
Binocular main body
Zoom Knob
Eyepiece cover
Focusing knob
Eyepiece
10X
10X reticule
20X
20X reticule
Installation hole for up light source
Locking screw for head
Mounting hole for additional objective
0.5X additional objective
2X additional objective
Arm stand without Illumination
Locking screw for eyepiece
Stage plate
Black and white plate
Ground glass plate


Locking screw for c-mount
Up light source
Trinocular main body
Body locking screw
Arm stand
Installation hole for plate clips (optional)
up-down Led
up-down halogen
up LED down halogen
up Led
down Led
Light source base
Power switch for down illumination
Dimmer screw for down illumination
Installation hole for optional stage


Polar stand
ϕ 32
Trinocular main body
Focusing unit
Polar Stand without illumination unit

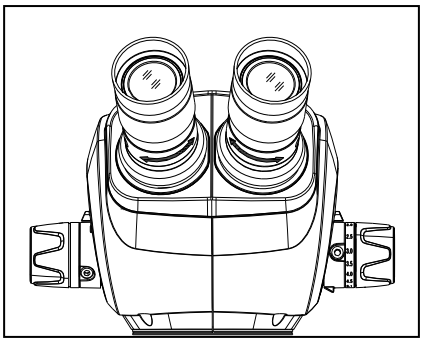

Switch knob for Light path
Out: TV light path 100% (Left Eyepiece 0%)
In: Left eyepiece tube light path 100%
Locking handle
Stand locking screw
Polar illumination stand unit
up-down LED
up-down halogen
up LED and down halogen
up LED
down LED
Illumination Dimmer Knob
Down illumination switch
Up Illumination Dimmer Knob
Up illumination switch
Power socket
Fuse holder

2. Observation procedure

2.1 Preparation

1、 Check parts …… P14-15
2、 Check eyepiece if correctly inserted into tube …….. P14
3、 Prepare for light source …… P6

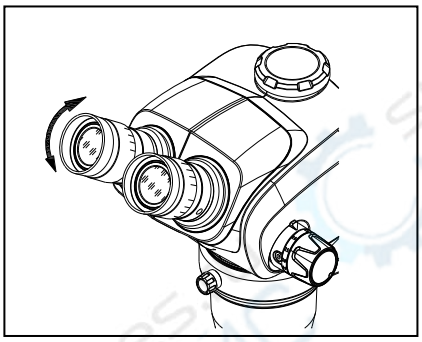
2.2 Procedure



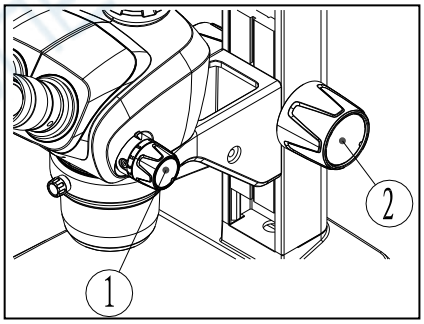
1. Put sample on stage （P 6）
2. Adjust interpupillary distance (P 6)
3. Adjust diopter (P 6-7)

(Note): non-adjustable eyepiece（WH10X/WH20X） can't do this step.

Adjusting steps according to whether or not to use reticule eyepiece and there is a little different.



4. Adjust Room knob ① to minimum level ,rotate the focusing knob ② for coarse focus.
5. Rotate the room knob ① to the required magnification ,then focus with focusing knob.



3. Operation

3.1 Stand

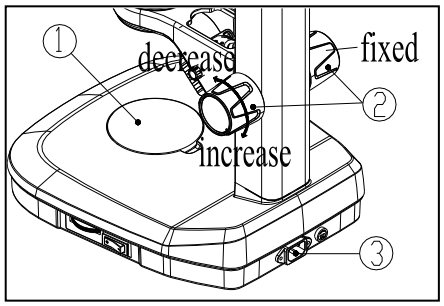


Fig 1

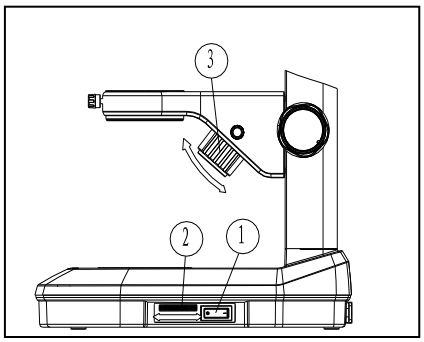


Fig 2

3.1.1 Usage of stage round plate

In order to more easily observe samples in reflecting illumination , Stage plate ① can be changed from white side or black side .

◎ Ground glass plate can be used with transmitting illumination.

3.1.2 Focusing knob adjustment

Holding left& right focusing knob ② with both hands(Fig 1),then fixed left focusing knob. Rotating clockwise the right focusing knob, Strain can increase otherwise decrease .

◎ Suggestion: to set tension at higher position in case of automatic down.

3.1.3 Usage of light source

(Only for stand with illumination unit）

1. Plug in power line in socket ③（Fig 1）,turn on the power.
2. Open power switch ①（Fig 2），transmitting light will be bright.
3. Rotating down illumination knob ②（Fig 2 ）to adjust light intension.
4. Rotating the up illumination ③for adjusting the light position.

3.2 Main body

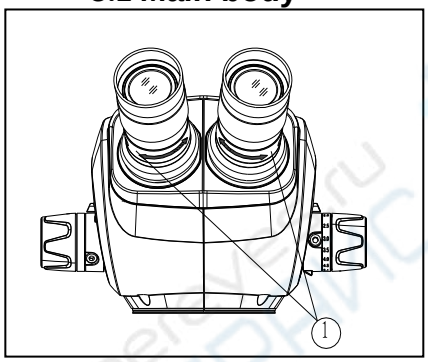


Fig 3

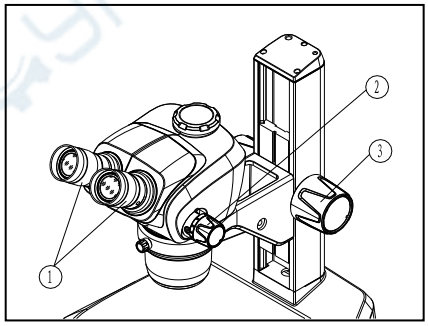


Fig 4

3.2.1. Interpupillary Distance Adjustment（Fig.3）

Holding binocular eyepiece tube ①，adjusting eyepiece field until left &right field overlap totally.

◎ The noise is normal when rotating the eyepiece tube to adjusting field .

3.2.2. Dioper adjustment （Fig 4-5）

◎ Different operation ways depend on whether using reticule eyepiece.

* **Don't Use Reticule Eyepiece.**

1. Make left & right eyepiece diopter adjustable ring ① to "0" position .
2. Put sample on the stage plate.
3. Rotating zoom knob ② to minimum magnification power , then focus the sample with focusing knob ③.
4. Rotating zoom knob ② to maximum zoom power，then focus the sample with focusing knob ③.
5. Rotating zoom knob ②to minimum zoom power, to focus the sample with left & right eyepiece diopter adjustable ring ①.

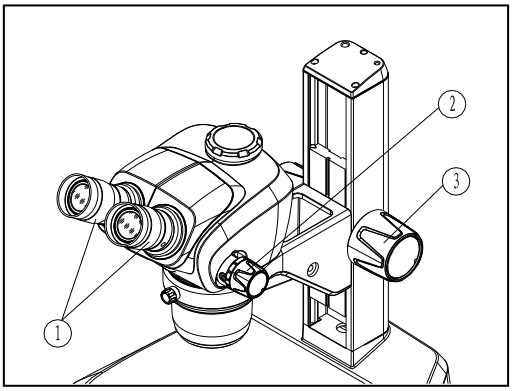


Fig 5

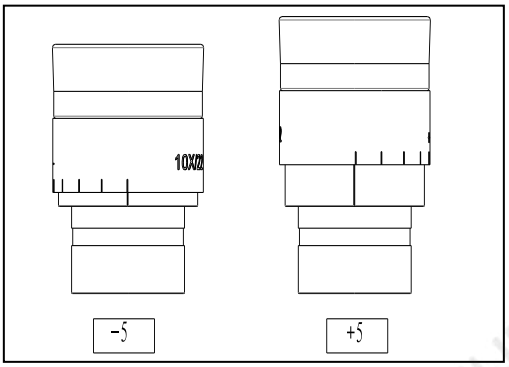


Fig 6

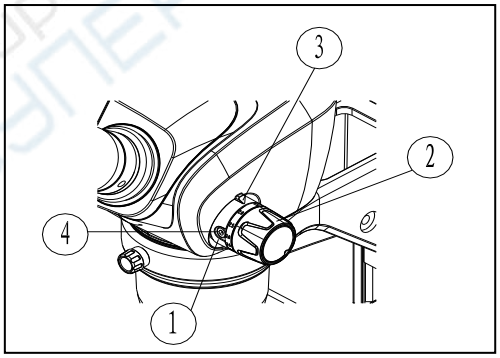


Fig 7

*** Use Reticule Eyepiece.**

1. With micrometer eyepiece to observation ,rotating diopter adjustable ring ① to focus the scale.
2. Put sample on the stage plate.
3. Rotating zoom knob ② to low magnification power ， focusing the sample with focusing knob ③ to observe the sample with micrometer eyepiece.
4. Rotating zoom knob ② to maximum power， then focus the sample with focusing knob ③.
5. Rotating zoom knob ② to minimum power, to focus the sample only with eyepiece diopter adjustable ring ① without reticule .

◎ Notice or Write down diopter number on the left& right eyepiece.

10X Eyepiece Diopter Scale （Fig 6）

◎ Useful range from -5 to +5 or over +5 to -5. Whether over -5 or below +5， both can confirm by eyepiece length.

3.2.3 **Usage of zoom magnification limiter(**Fig 7)

◎ By using limiter(indicate magnification value) and zoom knob spacing ring, Magnification can be limited in the required range. Right zoom knob is used to limit the high magnification, left zoom knob is used to limit the low magnification .

1. Using hexagon wrench to loosen right spacing ring's ①screw ④， it can rotate.（same way to loosen left ring）
2. Rotating right zoom knob ②， the maximum magnification can in alignment with indicator(limiter) ③.
3. Making spacing ring①close to limiter ③，Using hexagon wrench to fasten screw for fixed condition.
4. Rotating right zoom knob ②， the minimum magnification can in alignment with indicator(limiter) ③, in the same way to fix spacing ring.

3.2.4 **Usage of eyecup** （Fig 8）

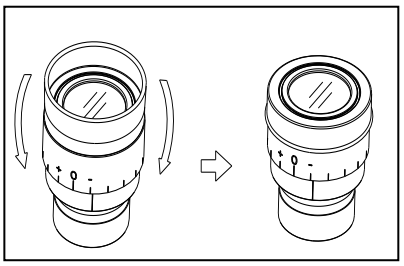


Fig 8

▲ Using eyecup: First to open the folding cover by following direction of arrow in case of touching eye or scraping eyepiece.

▲ Don't use eyecup: Put it in normal folding position in case of external light between eyepiece and eyes.

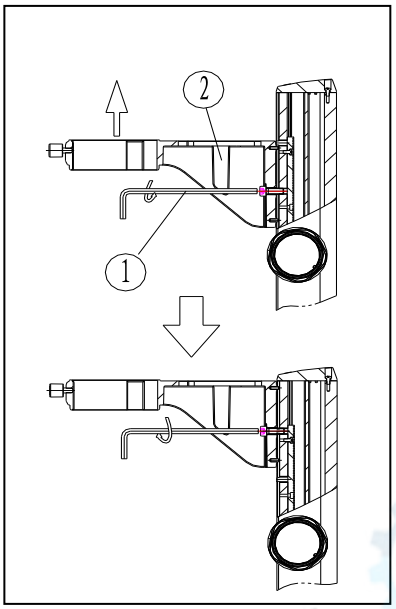


Fig 9

3.2.5 **With additional objective**（Fig 9）

◎ Because 0.5X additional objective has long working distance, bracket② must adjust to higher position.

1. With 5mm allen wrench①to remove bracket② screw(up illumination lamp should be moved from the stand).
2. Moving the bracket② to higher position and fasten the screw.

◎ Screwing additional objective into the hole at the bottom of the microscope.

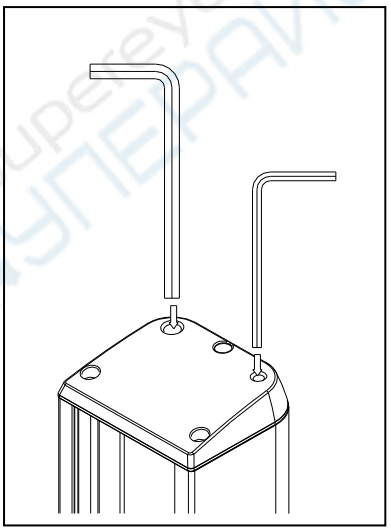


Fig 10

3.2.6 **Storing for allen wrench**（Fig 10）

Cover on arm stand can hold 5mm and 3mm allen wrench. Storing hole is convenient for next use.

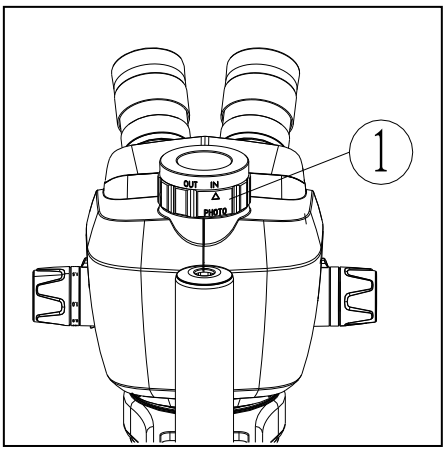


Fig 11

3.2.7 **Choose light path（Trinocular main body）**

1. Through binocular light path to observe sample, please turn the switching knob① to **IN**. (Fig 11)
2. Through camera light path, please turn the switching knob①to **OUT**. (Fig 11)
   Because in this position ,mirror inserted into the light path , so 100% left eyepiece tube light distribution will pass video output.

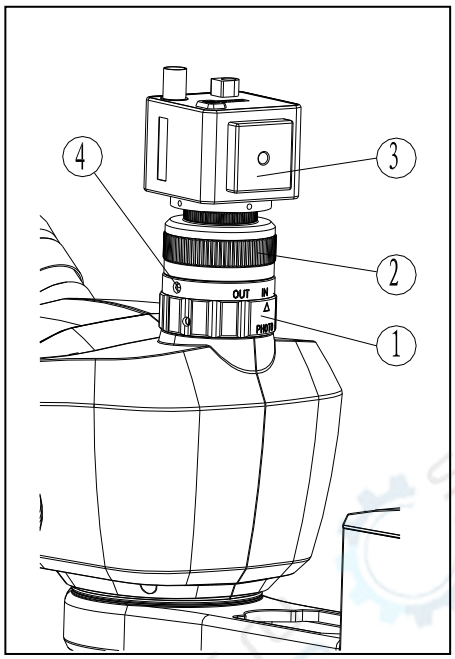


Fig 12

3.2.8 **Adjusting camera parfocality**

(Trinocular main body) **(** Fig 12)

◎ Keep parfocality between image and video camera monitor for better image output after switching light path.

1. Adjusting eyepiece diopter to focus（P 6-7）.
2. Rotating the switching knob① to OUT, set minimum magnification .
3. Holding camera ③ ,rotating adjustable knob ②， adjusting parfocality to focus for monitor image.

◎ Jointing 0.5X C-mount with the bottom of the camera .

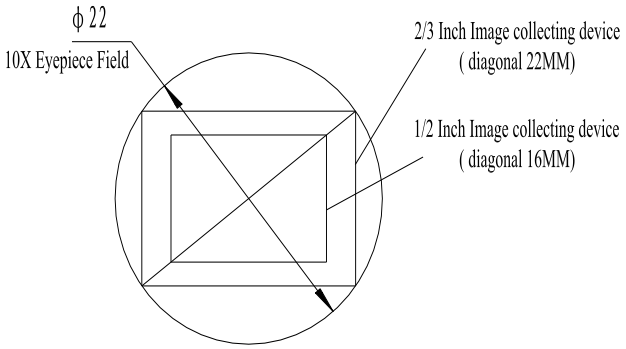


Image rotation Monitoring

◎ For TV light path, the monitor image will rotate slightly because Left eyepiece light path is in inclined way.

◎ Rotating camera, monitor image will align at observation image.
(loosening locking screw ④ and rotating camera, then monitoring image is coincided with observation image ,fasten the locking screw ④).

4. Troubleshooting

Trouble	Causation	Remedy	Page
Left &right field of view can't overlap.	Interpupillary distance adjustment isn't correct.	Readjust	6
	Optical parallax isn't correct.	Readjust	6-7
	Left & right Eyepiece is different.	Change eyepiece with same magnification.	3
Dust found in view image.	Dust on sample.	Wipe the dust	10
	Dust on eyepiece.		
Image isn't clear.	The dust on the top of the objective.	Wipe the dust	10
When changing focus magnification power , sample image is out of focus.	Eyepiece diopter isn't accurate.	Readjust again.	6-7
	Focusing adjustment isn't correct.	Focusing again.	5
Image in Right field or image in monitor became two half.	Light path switch knob isn't at IN position.	Turn switch knob to **IN**.	9
Monitor image is out of focus .	Incorrect focusing adjustment for camera.	Focusing again.	9

5. Maintenance

5.1 If the lens surface has dust, please clear with a blow ball. If the lens surface with fingerprints or oil stain, please clean gently with absorbent cotton or lens paper dipped in a little ethanol ether mixture (ratio 1:4) .

Absolute alcohol is an inflammable material, please turn off the power and don't close to open fire , Please assure indoor ventilation.

5.2 Don't use solvent to wipe non-glass parts unless with soft hairless cotton in little neutral cleanser.

5.3 Don't disassemble microscope parts, otherwise result in damage for performance.

6. Technical specification

A23.2603 (0.7- 4.5X)

Additional Objectives		0.5X	0.75X	1X(built-in)	1.5X	2X
Working distance (mm)		184mm		108mm		40mm
10XEyepiece/ Φ22mm	magnification	3.5～22.5	5.25～33.75	7～45	10.5～67.5	14～90
	Field dia(mm)	62.86～9.78	41.91～6.52	31.43～4.89	20.95～3.26	15.72～2.45
15XEyepiece/ Φ17mm	magnification	5.25～33.75	7.875～50.63	10.5～67.5	15.75～101.25	21～135
	Field dia(mm)	48.57～7.56	32.38～5.04	24.29～3.78	16.19～2.52	12.14～1.89
20XEyepiece/ Φ13mm	magnification	7～45	10.5～67.5	14～90	21～135	28～180
	Field dia(mm)	37.14～5.78	24.76～3.85	18.57～2.89	12.38～1.93	9.29～1.44

A23.2604 (0.68X - 4.7X)

Additional Objectives		0.5X	0.75X	1X(built-in)	1.5X	2X
Working distance (mm)		184mm		108mm		40mm
10XEyepiece / Φ23mm	magnification	3.4～23.5	5.1～35.3	6.8～47	10.2～70.5	13.6～94
	Field dia(mm)	67.65～9.75	45.1～6.52	33.82～4.89	25.55～3.26	16.91～2.45
15XEyepiece / Φ17mm	magnification	5.1～35.3	7.65～52.9	10.2～70.5	15.3～105.8	20.4～141
	Field dia(mm)	50.0～7.23	33.33～4.82	25.0～3.62	16.67～2.41	12.5～1.81
20XEyepiece / Φ13mm	magnification	6.8～47	10.2～70.5	13.6～94	20.4～141	27.2～188
	Field dia(mm)	38.24～5.53	25.49～3.69	19.12～2.77	12.75～1.84	9.56～1.38

A23.2605 (0.65X - 5.3X)

Additional Objectives		0.5X	0.75X	1X(Built-in)	1.5X	2X
Working distance (mm)		184mm		108mm		40mm
10XEyepiece / Φ24mm	magnification	3.3～25.5	5.0～38.3	6.6～51	9.9～76.5	13.2～102
	Field dia(mm)	72.73～9.41	48.48～6.27	36.36～4.71	24.24～3.14	18.18～2.35
15XEyepiece / Φ17mm	magnification	5.0～38.3	7.4～57.4	9.9～76.5	14.9～114.8	19.8～153
	Field dia(mm)	51.52～6.67	34.34～4.44	25.76～3.33	17.17～2.22	12.88～1.67
20XEyepiece / Φ13mm	magnification	6.6～51	9.9～76.5	13.2～102	19.8～153	26.4～204
	Field dia(mm)	39.39～5.10	26.26～3.40	19.70～2.55	13.13～1.70	9.85～1.27

★ With additional objective 0.5X , arm stand bracket should be removed to high position.

◎ No matter how much zoom magnification is, working distance is constant.

◎ According to the following formula for total magnification and actual field of view:

Total magnification = Zoom magnification × Eyepiece magnification × Additional objective magnification

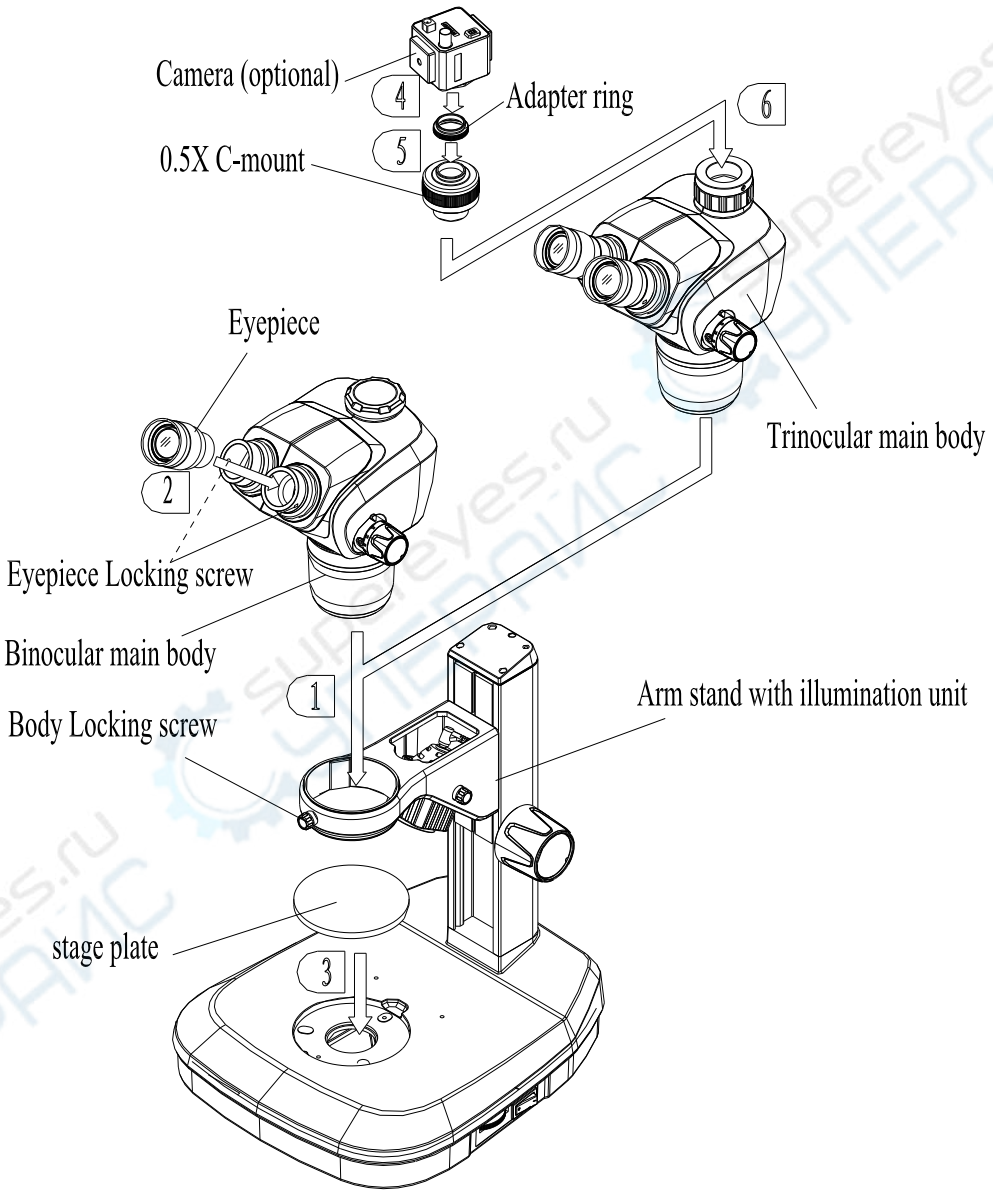
Actual field of view=Eyepiece field of view / Zoom magnification × Additional objective magnification.

***** If without additional objective , the value is number 1.

7 . Installation

7.1 Installation diagram (Note: Number is installation sequence)

★ To ensure that all parts has no dust and dirt. Note any part not scratch, rub or touch the glass surface.



7.2 Installation Details

7.2.1 Main body Installation（Fig 13）

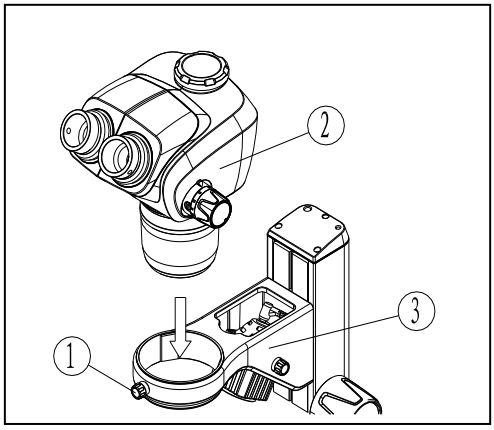


Fig 13

1. Unscrew body locking screw ①，insert into main body ②.
2. Fasten the Body Locking screw ①.

◎ You can rotate the main body if making observation from one side of focusing knob.

7.2.2 Eyepiece Installation (Fig 14)

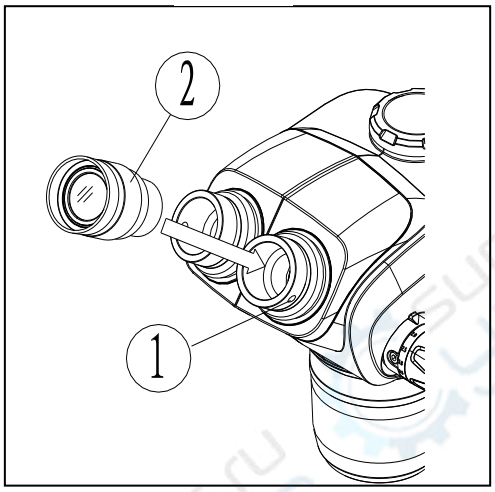


Fig 14

1. Turn eyepiece ② to 0°,then insert into the tube ， Scribed line is up (if choose ordinary eyepiece, no such step**).**
2. Fasten the eyepiece locking screw ① with socket head wrench.

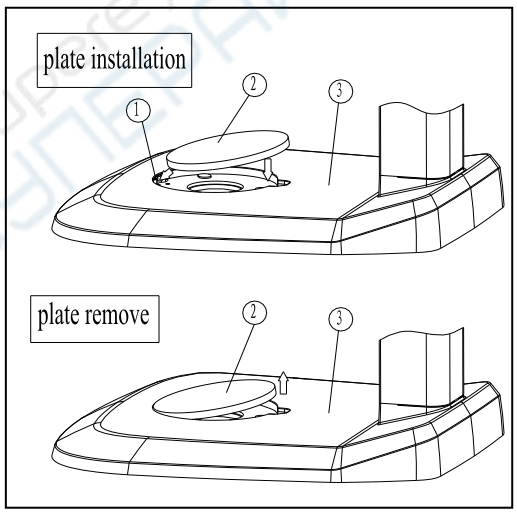


Fig 15

7.2.3 Stage plate installation（Fig 15）

1. Insert the stage plate (2) to slide on the spring of the bedplate①, then make the plate into the mounting hole and press from top to down to make it firmly installed.

◎ According to different sample to chose white plate cover or black plate cover.

2. Please remove the plate directly with finger following the diagram .

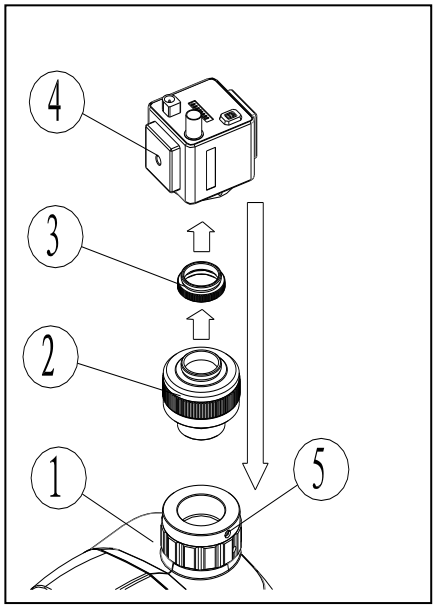


Fig 16

7.2.4 Camera installation（Only apply to trinocular body ）（Fig 16）

1. Connect C-mount ② and adapter ring ③ .
2. Screw in the combination adapter to the camera.
3. Loosening the locking screw ⑤，insert the camera and locking again.
4. Connecting the data line monitor or computer with camera.

8. Optional accessory

8.1 Ring optical fiber

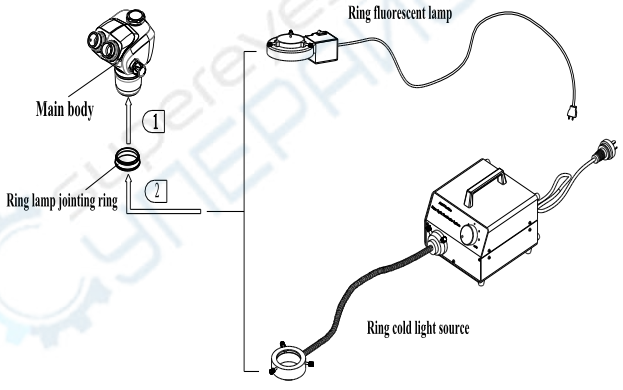


Fig 17

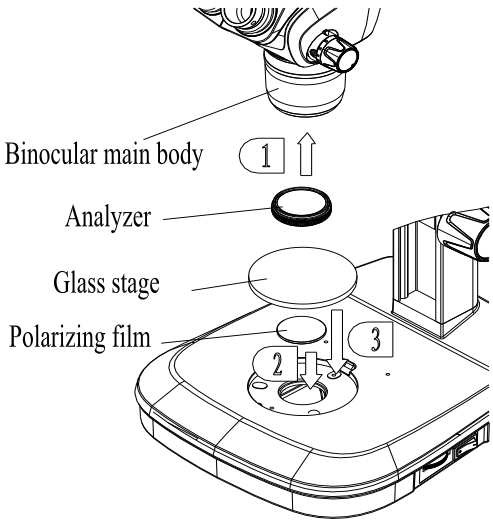
8.1.1 Installation（Fig 17）

1. Screwing the ring lamp jointing ring in main body.
2. Connecting the ring light source and fasten the locking screw.

8.1.2 Usage

1. Switch on the power after installing the illumination.
2. Use light dimmer to change the illumination brightness.

8.2 Polarizing unit



8.2.1 Installation

1. Put the analyzer in the bottom of the head.
2. Put the polarizing film in the stage hole.
3. Install the glass plate (Fig 15).

8.2.2 Usage

The polarizer unit must used with transmitting illumination unit.

Focusing for samples： rotating analyzer for best illumination effect, light intensity can changed by useing the down illumination dimmer Knob.