

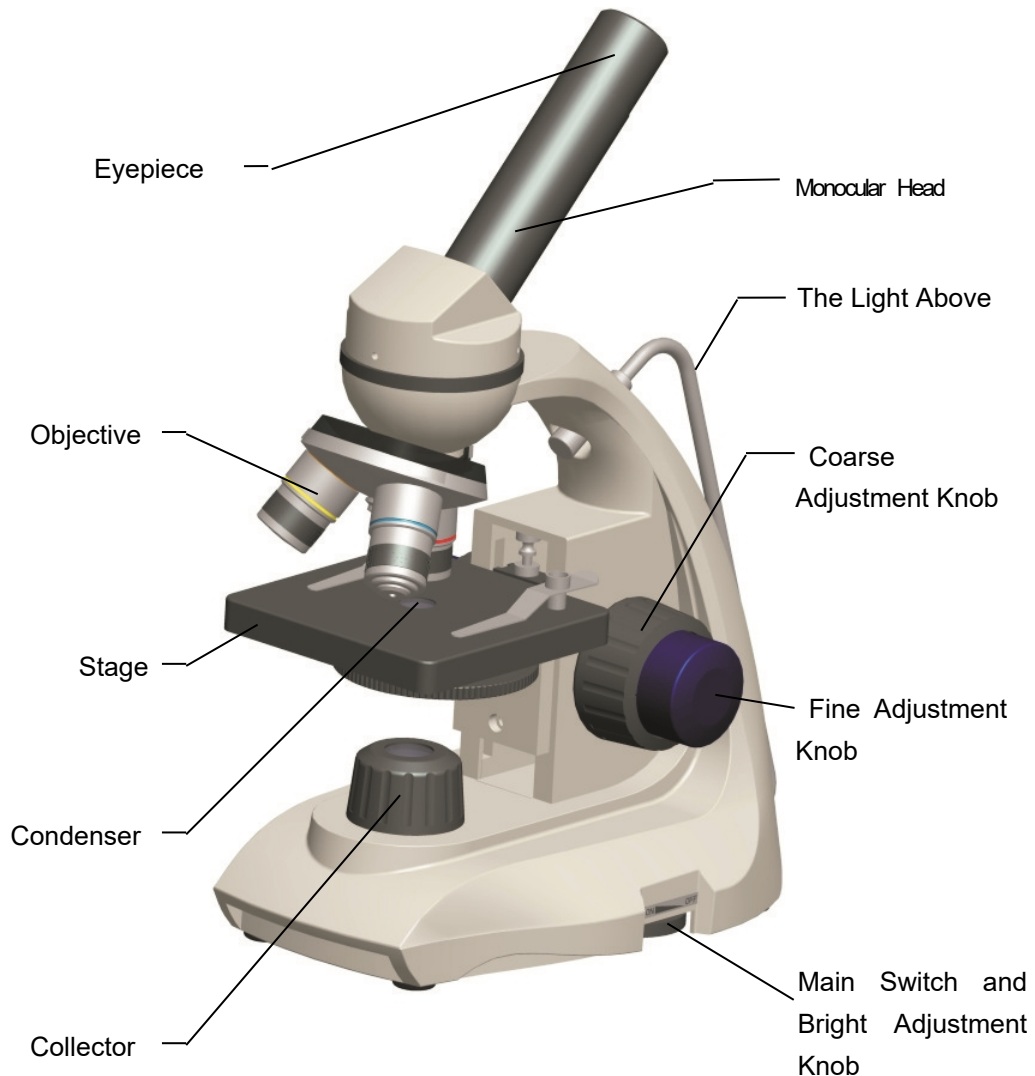
Biological Microscope

BS-2005 Series

Instruction Manual



This manual is for users of BS-2005 Biological Microscope. To ensure your safety, obtain optimum performance, and to familiarize yourself fully with the use of this microscope, we recommended that you study the instruction manual carefully.



I . Application

BS-2005 Biological microscope, which is widely used in schools, medical and hygienic establishments for conventional microscopic examination, general biologic, pathologic and bacteriological studies, clinical investigations and classroom demonstrations. Designed in a very modern way what can take convenient and safe to your operations.

II . Main Technical Specification

1. Mechanical tube length:160mm

2. Objective (Achromatic):

Magnification	Numerical Value Aperture Diaphragm (N.A)	Focus f(mm)	Working Distance(mm)	comment
4X	0.10	31.05	30.9	
10X	0.25	17.13	7.54	
40X	0.65	4.65	0.58	

3. Eyepiece

Kind	Magnification	Focus f(mm)	Field Of View (mm)
Plan Eyepiece	10X	25	Ø15

4. Total magnification

Eyepiece	10X	10X	10X
Objective	4X	10X	40X
Total Magnification	40X	100X	400X

5. The conjugate distance of objective: 185mm

6. Stage: an single stage with clip. Size 90mmX90mm

7. Coarse Focusing range: 17mm

8. Condenser: Single Lens NA0.65 with Iris Diaphragm

9. Illumination: LED Lamp Illumination 0.1W, Brightness Adjustable. USB Lamp Illumination is alternative.

III. Outfits

Component Name	Specification	BS-2005M	BS-2005B
Viewing Head	Monocular Head, inclined at 45°	●	
	Binocular Head, inclined at 45°, Interpupillary distance 54-77mm		●
Eyepiece	10X Wide Field Eyepiece	●	●
Objective	4X	●	●
	10X	●	●
	40X	●	●
	100X	○	○
Condenser	Single Lens NA 0.65 with Iris Diaphragm	●	●
Nosepiece	Triple Nosepiece	●	●
Stage	Plain Stage with Slide Clips, 90×90mm	●	●
	LED Lamp 0.1W, Brightness Adjustment	●	●
Focusing System	Coaxial Coarse and Fine Adjustment	●	●

IV. Configuration

a). Eyepiece, Objective and Nosepiece

The monocular microscope has wide field eyepiece 10× and achromatic objective 4×, 10×, 40× and 100×. The nosepiece is small structured, and located stably and exactly. It has a large and sharp image, with 360° rotatable monocular or sliding binocular head.

b). Bend arm and Coarse and fine focusing knob

The curved arm use C-shaped, has sprightly lines. Also, with upper focus stop. The coarse focusing adjustment adopts dovetail guide which make focusing adjustment smooth and comfortable.

c). Base

The base is designed to the instrument, which having a streamlined shaped circular, and it harmonized the aim's shape slinky, Electrical components and lamp built inside it as the illuminator.

d). Stage:Fixed stage

e). Illumination:

The system consists of illuminator which contains collector / mirror, iris aperture diaphragm and condenser.

V. Assembly

a) Working environment requirement:

1). Room temperature: 0-40°C.

Maximum comparatively humidity: 85%

2). High temperature, which will result in mildew, dew and even ruinous instrument.

3). Avoid from the dust room. When it is not in use, please cover the microscope with dust cover.

4). Please place the microscope in a stable situation without any surging.

b) Check the Input voltage: be sure the power supply voltage is accordant with the nominal input voltage which is signed outside the microscope, or it will bring a serious damage to the microscope.

c) Lamp

1). The lamp has been well adjusted and checked before the microscope leaves factory.

2). Lamp replacement: The lamp has its standard service life. When it has expired, a lamp replacement is necessary. Set the main switch to off state, disconnect the power cord from the wall outlet, then allow the old bulb to cool before replacing the bulb with a new of the designated type. Open the lamp holder on the bottom of microscope to do the replacement, the surface of the new lamp bulb should be clean and free of fingerprint or dirt, which will decrease the brightness or even explode the bulb .

3). Eyepiece: Please insert the eyepieces into the eyepiece tubes.

4). Condenser: Condenser has been installed under the stage, which is threaded installation, can be spin out counterclockwise.

VI. Operation:

1. Insert the eyepiece into the inclined eyepiece tube, then rotate the objectives in sequence, according to their magnifications, into the threaded holes of the nosepiece. Place the specimen in the center of the field of view. First use low power objective to find the specimen image and then observe it with high power objective, at the same time, adjust fine focusing knob until the image is clear. When using 100× oil-immersion objective, the space between the front of objective and specimen surface should be full of cedar oil. Drops of cedar oil must be strictly free from air bubble, and the objective should be cleaned immediately after using, otherwise it may solidify and make cleaning difficult.
2. When using objectives of different magnification, please adjust the iris diaphragm of the condenser to bring its numerical aperture and objective's numerical aperture into coincidence.

VII. Maintenance and storage

1. When you open the carton, please be careful not to make the lens dropping.
2. All the lens has been adjusted by manufacturer already, please do not disassemble by yourself.
3. Nosepiece, coarse and fine focus is installed precisely, please do not disassemble by yourself.
4. You should make the instrument clean, and often wipe the dusts.
5. Place the instrument in a shady, cool and dry place, when finishing the operation, always use the dust cover for protection.

VIII. Troubleshooting Guide

If problems occur during use, please review the following list and take remedial action as needed. If you cannot solve the problem after checking the entire list, please contact the service department for as distance.

1. Optical Part

Problem	Cause	Solution
The edge of the field of view has shadow or the brightness is uneven	The nosepiece is not in located position(objective is not in the center of the optical path)	Turn to the right position (turn objective to the optical light center)
	The surface of the lens is moldy or has contaminant (including condenser, objective, eyepiece and collector)	Clean it up
Find dust and stain in the field of view	There are stains on the lens (include condenser, objective, eyepiece and collector)	Clean it up
	There are stains on the specimen	Clean it up
Image quality is very poor(low resolution and poor contrast)	There is no cover slip on the specimen	Add cover slip
	The cover slip is too thick or too thin	Use the standard cover slip(0.17mm)
	The specimen is placed inversely	Reversal it back
	There was oil on the dry objective(easily happened in 40x objective)	Clean it up
	There are stains on the lens(including condenser, objective, eyepiece and collector)	Clean it up
	No immersion oil on the immersion objective	use immersion oil
	The immersion oil has bubble	clean out bubble

	Have used the unsuitable oil	use suitable oil
One side of the image is dark	The nosepiece is not in the right position	Turning it until it reach the “clicked” position
	The specimen is floating	Fix it
The image shifts during focusing	The specimen slips on the stage	Fix it
	The nosepiece is not in the right position	Turn it to the “ clicked” position

2. Mechanical Part

Problem	Cause	Solution
The image can not focus when using high magnification objective	The specimen is placed inversely The cover slip is too thick	Turn inversely Use the standard cover slip (0.17 mm)
The objective touches the specimen when change the low magnification to the higher magnification	The specimen is placed inversely The cover slip is too thick	Turn inversely Use the standard cover slip (0.17 mm)
The specimen is not easy to move	The specimen holder is not fixed	Fix it
The eyes is too tired	No diopter adjustment	Adjust the diopter correctly

3. Electrical Part

Problem	Cause	Solution
The lamp is off when turning on the switch	No power	Check the connection of the power cord
	The bulb is not inserted	Insert it correctly
	The bulb burns out	Replace it
The brightness is not enough	Use a substandard lamp	Use the specified lamp
	The voltage is too low	Add the voltage
The bulb flickers or the brightness is vertiginous	The bulb is going to burn out	Replace it