



# Multi-Head Biological Microscope

## BS-2030MH4B

### Instruction Manual



This manual is for biological microscope Model BS-2030MH4B. To ensure the safety, obtain optimum performance and to familiarize yourself fully with the use of this microscope, it is strongly recommended that you study this manual thoroughly before operating the microscope.

### A. Applications:

The biological microscope for teaching BS-2030MH4B is designed for 3 persons to view simultaneously and is provided with achromatic objectives, wide field eyepieces, abbe condenser, adjustable built-in light source and also coaxial coarse and fine adjustment with focus stop. This microscope with his wide field eyepieces gives a nice and sharp image and is designed in a very modern way. It is specially designed for clinical examination and teaching demonstration in laboratories, colleges and medical field, it is also an ideal instrument for biological bacteriological, pathological and pharmaceutical research.

### B. Specifications:

1. 2PCS of Monocular head and 1 PC of Binocular head

2. Eyepiece:

Designation	magnification	field of view	focal length
WF eyepiece	10x	18mm	24.95mm

3. Objective:

Designation	Magnification	numerical aperture	Working distance (mm)
Achromatic	4x	0.1	37.5
	10x	0.25	7.316
	40x	0.65	0.632
	100x	1.25	0.198

4. Total magnifications:

Objective	4x	10x	40x	100x
Eyepiece	10x			
Total Magnification	40x	100x	400x	1000x

5. Conjugate distance: 195mm

6. Abbe condenser: NA=1.25 with iris diaphragm and filter

7. Coarse focusing range: 30mm with coarse focusing stop

8. Fine focusing range: 30mm with focusing division interval: 0.002mm

9. Area of Double layers mechanical stage: 140X140mm

Moving range: 75X50mm

10. Built-in illumination, 6V20W halogen lamp

### C. structure:

1. Mounting

Mounting is the base of the microscope. It supports the all weight of the microscope. This mounting has four rubber foets and that makes this instrument stable.

2. Illumination system:

In order to make observed specimen have enough brightness and make the resolving power of

the objectives be used fully, this instrument adopt 6v20w built-in brightness variable lamp. It composed with condenser and iris diaphragm, turning the iris of the condenser and making the aperture of condenser suitable for the aperture of objective, the condenser is composed of two parts. One is installed on trestle. This trestle can move up and down by rack and gear. The light axis of the condenser must coincide with the light axis of this instrument. When it diverge, adjust three screws in the trestle of the condenser. The other is installed on the mounting.

3. Stage and shifter:

Stage is installed on stage rack. It can move up and down and is perpendicular to optical axis .the shifter can make the specimen move transversely and longitudinally.

4. Eyepiece, objective and nosepiece;

The microscope imaging system is composed of eyepiece and objective according to their magnifications. Rotate the objectives into the threaded holes of the nosepiece. So that when turning the nosepiece. You can change the objectives and get the needed magnification swiftly. The nosepiece adopts precise and advanced structure .when changing the objectives, the center area of the field view always locates within the range of observing and satisfies the focusing requirement.

Three persons observe in the same time, two monocular heads and one binocular can rotate  $360^{\circ}$ , in the field view, the center of the image is coincident. This is guaranteed by the instrument, so that the operator do not adjust by themselves. The eyepiece tube is inclined  $45^{\circ}$ ,so it observed comfortable and convenient.

5. Coarse and fine focusing equipment

This instrument adopts coaxial coarse and fine focusing equipment.The knobs are located below the stage. So it is easy to operate coarse focusing range is 30mm. Fine focusing range is 30mm too. There is knob beside each coarse focusing knob. One is used as tightness adjustment for coarse focusing knob. The other is used as coarse focusing stopper. When you lower the stage and raise it again the stage is at the same level. When you do not the location, you can turn the flange of the stopper and loose it.

**D. Usage:**

1. Rotate the objectives in sequence, according to their magnification, into the 4 thread of the nosepiece. Insert the eyepiece into the inclined eyepiece tube.
2. Put the specimen on the stage. Adjust shifter and make the specimen in the center of the hole of the stage.
3. First use objective 10x, turn the coarse focusing knob and make the objective near specimen and then observe the image through eyepiece and turn the coarse focusing knob down until you can see the specimen image. After that turn the fine focusing knob until you get a sharp image. Because this instrument adopts precise and reliable nosepiece, you can always observe a clear image with different objectives.

**E. The complete set of the microscope:**

Items	Contents	Quantity
1	Main Body	1set
2	Eyepiece P10x	4 pcs
3	Objective 4x,10x,40x,100x	1set
4	Monocular head	2pcs
5	Binocular head	1pc
6	Shifter	1pc
7	Spare lamp	2 pcs
8	Operation manual	1 copy

**F. Maintenance:**

1. The microscope is the same as other optical instrument. Need to be kept in cool, dry, dustless and acidless place. The instrument should be covered with dust guard after using.
2. Never disassemble the lens because they are corrected stringently. If there is stain on the lens, it can wipe out by alcohol, but you should pay attention not to seep it into the inside of the objectives so as not to dissolve glue. Dust on the lens can be wiped away by clean brush.
3. Coarse and fine focusing equipment and nosepiece are precisely constructed and should not be dismantled without authorization.
4. When not in use, keep the objectives in the objective box and cover the eyepiece tube with eyepiece tube cover.