

Please read the operation manual before using the microscope.

Biological Microscope
BM-500, 502, 503 Series
OPERATION MANUAL

1. BM-500, 502, 503 SERIES BIOLOGICAL MICROSCOPE

The microscope is a precision instrument, both optically and mechanically, and will last a lifetime with a minimum of maintenance. It is built to high optical & mechanical standards, is designed to withstand daily classroom and laboratory use with only normal care.

2. UNPACKING AND ASSEMBLY

The microscope is housed in a molded foam container. Lay the container on its side, remove the tape from its perimeter and carefully lift the top half of the container. Open the container carefully and do not let the optical items (objectives and eyepieces) drop down, to avoid them being damaged. Using both hands (one around the arm and one around the base), lift the microscope from the container and put it on a stable desk.

The objectives will be found within individual protective vials. Install the objectives into the microscope nosepiece from the lowest magnification to the highest, in a clockwise direction from the rear. Insert the eyepieces into the eye-tube. The eyepiece is included with your microscope. Put the observation head onto the top of the arm and tighten the lock-screw.

3. USING THE MICROSCOPE

- 3.1. Loosen the lock-screw, turn the observation head to a comfortable position for observation, and then lock the lock-screw.
- 3.2. Place a specimen to be studied on a glass slide, clamp it by the slide-clamp on the mechanical stage. Make certain that the specimen is centered over the stage opening by adjusting the coaxial knobs of the stage.
- 3.3. The microscope comes with electrical illuminator. Insert the plug of the cable into the power socket and turn on the switch to get the specimen illuminated. Turn the brightness-adjust-knob to get the field brightness suitable for observation.
- 3.4. Hold the right & left parts of the observation head by both hands and

adjust the interpupillary distance by turning the two parts until one circle of light can be seen. After finishing the interpupillary adjustment, turn the two diopter-rings to aim "0" position at the graduation line on the eye-tubes.

- 3.5. Take off the screw which stop the focus-stop-knob and loosen the focus-stop-knob, rotate the coarse-focusing-knob to bring the slide into focus with objective 4X or 10X, then lock the focus-stop-knob. Adjust the fine-focusing-knob to get the image sharp and clear while observing with your left eye, then turn the right diopetr-ring to get sharp and clear image also with another eye. (It is best to begin with the lowest power objective. This is important to reveal general structure details with the largest field of view first. Then you may increase the power as needed to reveal smaller details.) Turn the tension-adjust-knob to get a suitable tension for the focus system.
- 3.6. Turn the condenser-adjust-knob to move the condenser up or down to concentrate light and to get the image brightness suitable for observation. The two condenser-centering-screws can be used to adjust the condenser for centering.
- 3.7. Color filters may be inserted into the filter holder for definition of specimen parts. The condenser lens housing must be lowered enough to allow the filter holder to swing out. Color filters can be inserted.
- 3.8. Adjust the aperture of the iris diaphragm to get the background brightness suitable. Turn the nosepiece to choose the objective you need.
- 3.9. Two kinds of observation heads are available for option. If the microscope comes with a trinocular head, the vertical tube can be used for connecting with a SLR camera through a photo adaptor or for connecting with video camera through a video adaptor, for taking photos and videos.

How to change the lamp

Before changing the lamp, must pull the plug out off the electrical socket and wait for a while until the lamp cools down to avoid being burnt. Hold the main body and incline the microscope until the bottom base can be seen. Loosen the door-lock-screw on the bottom base to open the small-door. Then the lamp and lamp holder come out with the door. Pull the lamp out and insert a new one into the holder. Close the door by tightening the screw.

4. CARE

4.2. Always

- Usually, following environment is required:
Indoor temperature: 0°C-40°C Max. relative humidity: 85%
- Keep the microscope away from dust, shock while use.
- Turn off the light immediately after use.
- Use a soft lens tissue to clean the optics.
- Apply soft cleaning lotion to clean other parts of the microscope.
- After use, cover the microscope with a dust-cover included with it, and must keep the microscope in a dry and clean place.

4.2. Never

- Wipe the surface of any optic with your hands.
- Disassemble objective or eyepieces to attempt cleaning them.
- Mishandle or impose unnecessary force on the microscope.
- Clean the unit with volatile solvents or abrasive cleaners.
- Attempt to service the microscope yourself.

5. ELECTRICS

Main Power

Universal Power: 85V-265V 50/60 HZ

Lamp: 6V/20W Halogen lamp

Fuse: T1A

6. BM-500 SPECIFICATIONS

PRATS	SPECIFICATIONS	BM-500
Observation	Binocular head	●
Head	Trinocular head	○
Eyepiece	WF10X18mm, paired	●●
	WF15X13mm, paired	○○
Nosepiece	Quadruple nosepiece	●
	Quintuple nosepiece	○
Objective	DIN achromatic objective 4X	●
	DIN achromatic objective 10X	●
	DIN achromatic objective 40XR	●
	DIN achromatic objective 100XR(oil)	●
	DIN achromatic objective 20XR	○
	DIN achromatic objective 60XR	○
Stage	Built-in mechanical stage	●
Condenser	N.A.1.25 Abbe condenser	●
Diaphragm	Iris diaphragm and filter holder	●
	Field diaphragm	○
Illuminator	Built-in electrical illuminator	●
Package	A foam container in a carton	●
For option	Wooden carrying case	○
	CCD adaptor	○
	Photo adaptor	○
	Phase contrast attachment	○
	DCM35 (USB1.0) digital camera	○
	DCM35 (USB2.0) digital camera	○
	DCM130 (USB1.0) digital camera	○

● Item include ○ Item for option

BM-502 SPECIFICATIONS

PRATS	SPECIFICATIONS	BM-502B	BM-502T
Observation Head	Binocular head	●	
	Trinocular head		●
Eyepiece	WF10X18mm, paired	●●	●●
	WF15X13mm, paired	○○	○○
Nosepiece	Quadruple nosepiece	○	○
	Quintuple nosepiece	●	●
DIN Semi-plan Achromatic Objective	4X	●	●
	10X	●	●
	40XR	●	●
	60XR	●	●
	100XR(oil)	●	●
	20XR	○	○
Stage	Built-in mechanical stage	●	●
Condenser	N.A.1.25 Abbe condenser	●	●
Diaphragm	Iris diaphragm and filter holder	●	●
	Field diaphragm	●	●
Illuminator	Built-in electrical illuminator	●	●
Package	A foam container in a carton	●	●
For option	Wooden carrying case	○	○
	CCD adaptor	○	○
	Photo adaptor	○	○
	Phase contrast attachment	○	○
	DCM35 (USB1.0) camera	○	○
	DCM35 (USB2.0) camera	○	○
	DCM130 (USB1.0) camera	○	○

● Item include ○ Item for option

BM-503 SPECIFICATIONS

PRATS	SPECIFICATIONS	BM-503B	BM-503T
Observation Head	Binocular head	●	
	Trinocular head		●
Eyepiece	WF10X18mm, paired	●●	●●
	WF15X13mm, paired	○○	○○
Nosepiece	Quadruple nosepiece	○	○
	Quintuple nosepiece	●	●
DIN Plan Achromatic Objective	4X	●	●
	10X	●	●
	40XR	●	●
	60XR	●	●
	100XR(oil)	●	●
	20XR	○	○
Stage	Built-in mechanical stage	●	●
Condenser	N.A.1.25 Abbe condenser	●	●
Diaphragm	Iris diaphragm and filter holder	●	●
	Field diaphragm	●	●
Illuminator	Built-in electrical illuminator	●	●
Package	A foam container in a carton	●	●
For option	Wooden carrying case	○	○
	CCD adaptor	○	○
	Photo adaptor	○	○
	Phase contrast attachment	○	○
	DCM35 (USB1.0) camera	○	○
	DCM35 (USB2.0) camera	○	○
	DCM130 (USB1.0) camera	○	○

● Item include ○ Item for option