

FYBIKON ART. Nr: 10103, 10104

BS

Series Biological Microscope

Operation Instruction

FYBIKON
Din realfagsleverandør 

To ensure the safety and obtain satisfactory performance and to familiarize yourself with the use of this microscope, please study this instruction manual thoroughly before your operations.

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1 Purpose and components

BS series of biological microscope have some great feature that includes built-in carrying handle that makes operations easy and convenient. The microscopes have LED illumination that provides white light with virtually no heat. With built-in mechanical stage and plan achromatic objectives this is a perfect solution for educational purposes in schools that appreciate quality.

Components:

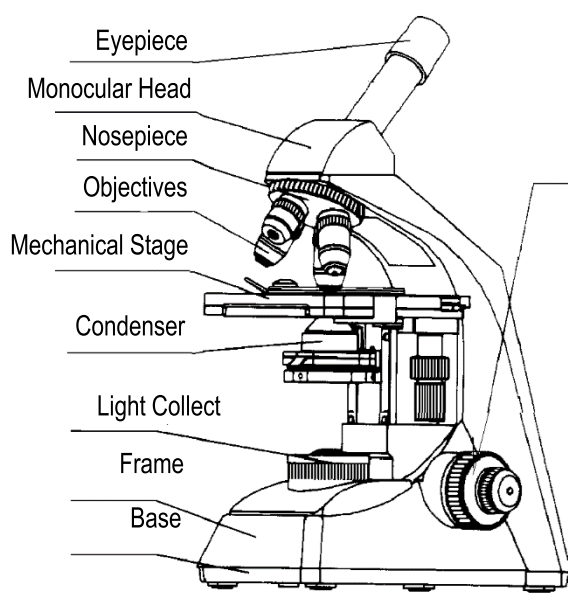


Fig.1 Shape of BS Microscope with Monocular Head, art. 10104

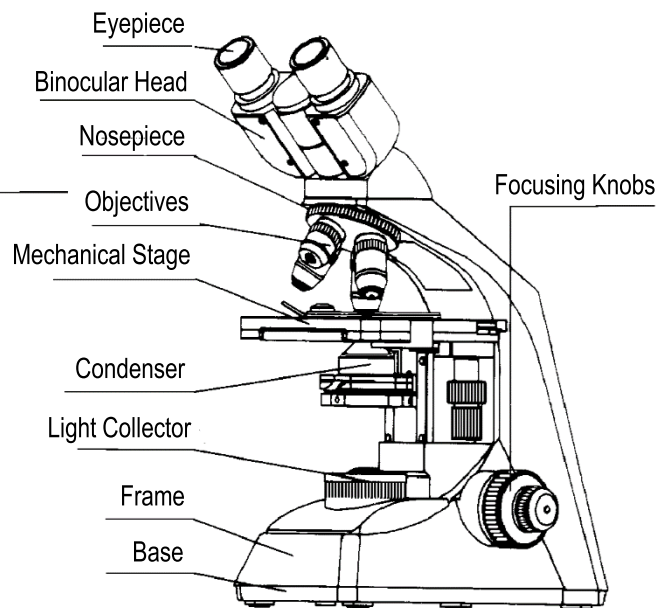


Fig.2 Shape of BS Microscope with Binocular Head, art. 10103

2 Specifications

2.1 Total magnifications

Objectives Eyepieces	4X	10X	40X	100X
10X	40X	100X	400X	1000X

2.2 Objectives

Code	Magnifications	Type	Numerical Aperture (N. A.)	Working Distance (mm)
B-OSP4a	4X	Plan achromatic objective	0.1	35.8
B-OSP10b	10X		0.25	2.49
B-OSP40f	40X		0.65	0.65
B-OSPo100b	100X	Plan achromatic objective (oil)	1.25	0.52

2.3 Eyepieces

Code	Magnifications	Type	Field Diameter (mm)	Focal Length (mm)	Remark
EP10g	10X	Plan eyepiece	φ 18	25	

2.4 Coarse and fine focusing knob

The larger focus control knob is located on either side of the microscope which facilitates rapid and heavy movement of the focusing mechanism. The fine focusing knobs, are used for precise focusing adjustments once the specimen has been brought into view with the coarse focus controls. Focusing knobs can make a coarse stroke 20 mm and the fine movement 0.18 mm each circle rotation with a division 0.002 mm.

2.5 Mechanical stage

This mechanical stage size is 135×130 mm with 2 scales (division 1 mm) and 2 vernier (division 0.1 mm) offers measure by 75 mm in X direction and 50 mm in Y direction.

2.6 Condenser

The condenser is mounted in the stage and it is used in conjunction with the iris diaphragm. The function of the condenser is to provide full illumination to the specimen plane and to enhance the resolution and contrast of the object being viewed. The condenser can be raised and lowered for precise light control. This condenser's numerical aperture (N.A.) is 1.25, and its lever lifter mechanism can supply an up-down range by 30 mm.

2.7 Interpupillary adjustable range

Increasing or decreasing the distance between the eyepieces is achieved by twisting the eyepiece tubes in an up and down arc motion similar to binoculars. The distance is between 53~75mm.

2.8 Diopter Located on the left eyepiece of the binocular head and is designed to help compensate the difference between the user's eyes. Diopter adjustable range is ± 5 diopter.

2.8 Electrical components

The built-in light source which provides the optical system with light is an energy efficient 3W rechargeable LED.

3 Installation

3.1 When unpacking and handling, please do not touch the optical surfaces. Place the biological microscope frame on a flat workbench and remove any foam padding or spacer used to prevent vibration during transportation.

3.2 Then take out the binocular or monocular head (Fig.2 shows a binocular head, and Fig.1 is a monocular one), insert it into the hole of the head mount at the top of frame, then fix it with a knurled screw tightly, as Fig.3 illustrate. The head can rotate round 360 degrees freely after being installed.

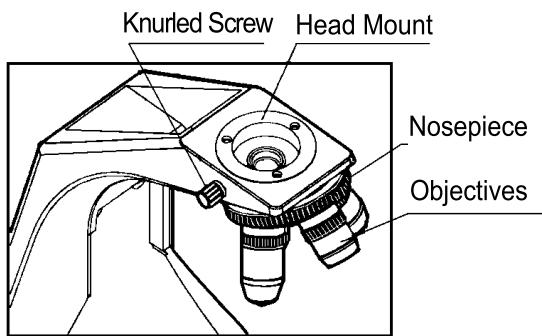


Fig.3 Installation of head

3.3 Screw objectives into the nosepiece's holes orderly according to the magnification-power of them.

3.4 Insert eyepiece into eyepiece tubes separately, then fix eyepieces by set screws. (Fig.5)

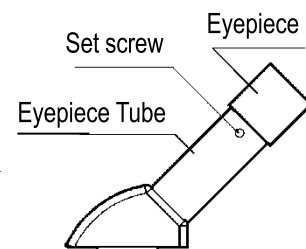


Fig.5

3.5 Make sure that the voltage in you power grid meets instrument's requirement and plug the power cord into the power outlet. If used cordless, first time fully charge for 8 hours. After the first time, 2 hours charge each time is ok.

4 Operations

4.1 Turing the microscope on/off.

On the side of base you will find the modulation disc by the printed “ON”/”OFF” sign. Turning this disc will regulate the light intensity and turn the microscope “ON”. Rotate the brightness control to the desired illumination. (After use, turn the brightness control to the OFF position, to save rechargeable batteries).

4.2 Interpupillary distance adjustment (only for binocular models)

While looking through the microscope, grasp the eyetubes and move them on their hinges until the two circular fields in the observation field coincide with each other. This should be adjusted for every new user.

4.3 Using the microscope

1. Use the slide holder mechanism to secure the slide in place. Be sure the specimen is centered over the opening in the stage.
2. Rotate the nosepiece to place the lowest power objective (4X) over the specimen.
3. Open the iris diaphragm to its largest aperture.
4. While viewing through the eyepiece(s), rotate the coarse focus knob slowly and carefully to bring the specimen into focus. The specimen may require some centering in the field of view at this time. By using the fine focusing knob, slowly and carefully refine the focus to clearly observe the fine details of the specimen.
5. If the image of the specimen appears pale, the aperture of the iris diaphragm should be slowly closed until the details of the specimen are sharply defined. If the specimen appears dark, slightly open the diaphragm.

6. Set the diopter adjustment which is designed to help compensate for the difference between the user's eyes. To adjust, first bring the specimen into perfect focus by using the coaxial focusing knobs while looking through the eyepiece with the right eye only (close your left eye). Now, using your left eye only (close the right eye) turn the left eye diopter only (don't touch the focus controls) to obtain a crisply focused image. The diopter adjustment is now set and no further adjustment will be needed until a new operator uses the scope.
7. Rotate the nosepiece to the next higher power objective. A slight turn of the fine focusing knob may be required to bring the image of the specimen into sharp focus.

4.4 Adjustment of the condenser

The center of condenser is accurately adjusted at factory. No further adjustments should be necessary. While exchanging objectives, adjust the lever lifter of condenser to make it suit for the numerical aperture of objective selected to be used, thereby gaining a bright and well-distributed luminance in the view field.

5 Maintenance

5.1 The instrument should be used in a cool, dry, and clean place. Dusty/dirty environment, violent shaking and corrosive gases must be avoided.

5.2 Please do not disassemble the instrument without reason since it is thoroughly calibrated before leaving the factory. Please pay attention to prevent instrument from being exposed to violent shaking and vibrations. Do not drag it on the surface of worktable so as to avoid damage to the instrument and the worktable.

5.3 Do not touch the surface of outer lens. Dust on the surface can be cleaned by a soft brush or a piece of absorbent lens paper with alcohol.

5.4 Replacement of the LED

5.5.1 Turn the microscope “OFF” and pull out the plug from the wall outlet.

5.5.2 Make sure the LED assembly is cool before touching it.

5.5.3 Lay aside the instrument reliably, unscrew the bottom assembly to get access to the LED assembly. Switch assembly and mount bottom assembly.

5.5 Replacement of fuse

5.6.1 Turn the microscope “OFF” and pull out the plug from the wall outlet.

5.6.2 Lay aside the instrument reliably, unscrew down the cap of the fuse socket on the underside of the base to pull out the old fuse and replace a new one, then screw the cap onto the fuse socket again.

5.6 Please cut off the power supply and protect the instrument with dust cover after usage.

6 Trouble shooting

Trouble	Causation	Remedy
Power on, no light	(1) Power plug is not connected (2) LED is broken (3) Fuse is broken	(1) Plug it again more firmly (2) Change LED (3) Change fuse
LED is flickering or brightness is unsteady	LED is unstable	Check LED connection or change LED
Brightness of view field is uneven	(1) Dust on optical components (2) Nosepiece is not at the fixed position (3) Condenser isn't at the suitable position (4) Reflector isn't at the suitable position	(1) Clean it (2) Rotate to the fixed position according to No.4.3 (3) Adjust it according to No.4.10 once more (4) Adjust it according to No.4.11 once more
Image is out of focus gradually	The tension of the coarse and fine focusing unit is not suitable	Adjust the tension adjustment ring according to No.4.8
Easy fatigue in observation	The compensation ring of tube length is not at the comfortable position	Adjust it according to No.4.5 and 4.7 once more
Image cannot be observed by two eyes at the same time	The interpupillary distance is out of place	Adjust according to No.4.5 once more

Ved behov kontakt oss i Fybikon for.

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