LYNX MICROSCOPES

Stereomicroscope, L45

Please read the User Manual carefully before using it and follow all operating and safety instructions!

User Manual

English

User Manual

EN

Stereomicroscope, L45

Preface

Users should read this Manual carefully, follow the instructions and procedures, and beware of all the cautions when using this instrument.

Service

If help is needed, you can always contact your dealer or Labbox via www.labbox.com (declare an incident). Please, provide the customer service representative with the following information:

- Serial number
- Description of the problem
- Your contact information

Warranty

This instrument is guaranteed to be free from defects in materials and workmanship under normal use and service, for a period of 24 months from the date of invoice. The warranty is extended only to the original purchaser. It shall not apply to any product or parts which have been damaged on account of improper installation, improper connections, misuse, accident or abnormal conditions of operation.

For claim under the warranty, please contact your supplier.

1. **Permitted use:**

This microscope is only for microscopy observation.

Don’t misuse it for other purpose.

2. **No dismantle the equipment:**

Unless you are a microscopic expert, or there is a special guide about doing so in this manual, please don’t dismantle your microscope. Otherwise, it will damage the microscope seriously and reduce greatly its accuracy and use-life.

3. **Safety**

-Before changing a bulb, or need to open the base, ensure that the microscope has been disconnected with the power source. The new bulb must have the same specifications as the changed one.

-When the illuminator is a halogen lamp, it may be very hot near the lighting source. Don’t worry about it, but it must be treated carefully. Please take the combustible material (such as gasoline, paper, plastic and cloth) far away from the microscope.

-When changing the halogen bulb, wait until it is cool enough, otherwise the hot bulb will burn your fingers.

4. **Use the correct power supply voltage**

The power supply voltage must be fitted to the microscope; otherwise, it will damage the circuit and bulb, even leading to insecurity.

5. **Protecting optical parts**

Never try to contact directly the optical surface of objectives, eyepieces and other optical parts with your finger. Fingerprints will seriously affect your observation results.

6. **Don’t leave any dust and fingerprints on the bulb, otherwise it may affect its life and illuminating efficiency.**

7. **Working surroundings requirements:**

Room temperature: 0°C-40°C

The highest relative humidity: 85%

High temperature and humidity can cause mildew and damage the instrument.

8. **A microscope is a precision instrument; soft and gentle operation is necessary. Any rude action or hard shake may damage it.**

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A) Application:

The stereomicroscope is a high precision instrument designed and manufactured to be widely used in factories and schools for checking. We are honored to supply this stereomicroscope to you. Its two parallel bean paths and high-quality optic system offer you high resolution.

B) Features:

1. Eyepiece:

Usually, this microscope is only equipped with a pair of wide-field and plane-scope eyepieces WF10X. If you need, we will also provide you with wide-field and plane-scope eyepieces WF15X and WF20X. The specifications of the eyepiece WF10X are shown as following:

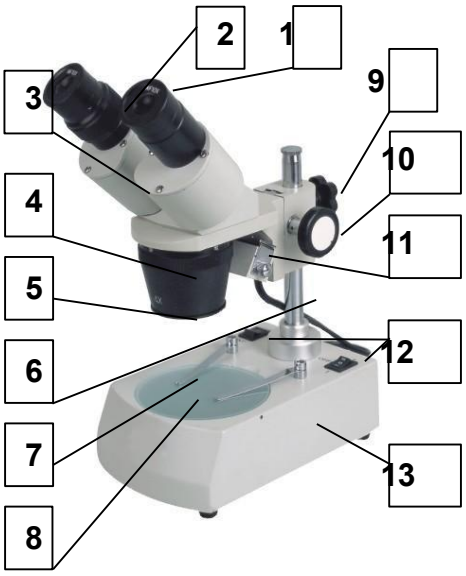
Wide-field and Plane-scope Eyepiece	Magnification	Diameter of Viewing Field	Working Distance
WF10X	10	18mm	24.95mm

2. Objective:

There are four objectives for choosing and grouping: 1X, 2X, 3X and 4X. Their specifications are as follows:

Objective	1X	2X	3X	4X
Working Distance	55.83mm	81.05mm	61.03mm	57.7mm
Numerical Aperture	0.03mm	0.05mm	0.06mm	0.07mm
Focal Distance	55.83mm	54.9mm	46.5	38.9mm
Conjugated distance	250mm	250mm	250mm	250mm

3. The main features and specifications:



1. Wide field eyepieces: A pair of WF10X, or WF15X, or WF20X.
2. Diopter ring: Dioptric correction: -3~+3mm. When observing, first adjust the microscope to make the image in the right eyepiece clear and then adjust the diopter ring by turning it to make the same clear image in the left eyepiece.
3. Prism housing: Inside, there are a set of prisms to change the direction of ray transmitting. Turn them in/out to adjust the interpupillary distance from 50mm to 75mm to suit different viewers.
4. Objective hood: Inside, there is a 2-position turret with 2 pairs of objectives grouped freely from 1X, 2X, 3X, and 4X
5. Dust cover: Take it off before observing.
6. Standing pole: Supports the viewing head.
7. Specimen clips: Catch the specimen.
8. Stage: A frosted-glass plate Φ95mm is used to transmit the bottom light. A spare plastic plate Φ95mm (One side is white, and the reverse side is black) is used to reflect light.
9. Locking screw: Loose/lock it to adjust the viewing head's height along the standing pole (5);
10. Focusing knob: Turn it to move the viewing head up/down by rack and pinion mechanism to bring the specimen into precise focus. A tension ring is used to adjust the focusing moment.
11. Top light.
12. 12. Switch.
13. Base: 191X118mm. Bottom light inside.
14. Arm: Supports the viewing head.

Illumination: 3.5V/1W LED

The viewing head is 45° inclined and binocular.

4. Diopter:

The diopter ring is used to focus the left eyepiece in conjunction with the right fixed eyepiece, and to give equal sharpness for both eyes.

5. Viewing head:

Vertical and binocular head with a pair of objectives. It is the most important part of the microscope, which contains objectives and prisms. Never try to dismantle your microscope.

6. Standing pole or arm:

It is the portion of the microscope to support the viewing head.

7. Stage:

It is a plate on the base. If the bottom illuminator is used, it must be a frosted-glass plate. A plastic plate (One side is white, and the reverse side is black) is used to reflect the light from the top illuminator or nature. When observing begins, open the spring stage clips and place the specimen on the plate under the objectives, and then fix it with the clips.

8. Focusing knob:

This stereomicroscope is equipped with a single focusing control mechanism, which will move the viewing head up or down to bring the specimen into precise focus. It is equipped with a slip clutch system. When the focus mechanism reaches its maximum upper or lower point, the focus knob will spin but will not force the mechanism to travel beyond its “stopped” position. This will eliminate expensive gear damage. A tension ring beside the knob is used to adjust the focusing moment. It will avoid the viewing head dropping automatically and provide comfortable operating.

9. Illuminator:

There are four types of illuminators for this series microscope:

1) Natural light.
2) 12V/10W Halogen lamp.
3) 3.5V/1W LED with three rechargeable batteries.
4) 3.5V/1W LED without rechargeable battery

LED illuminator is soft in light to suit the operator for a long-lime observation. When the current and voltage don’t overstep their limits, its average life can reach 100000 hours. It is very secure because the bulb’s temperature is lower than 30°C

even for long-time use. Equipped with rechargeable and high-capacity NiMH batteries, it avoids the trouble of power supply shortage.

The position of the bulb in microscope is very important to the image quality. When its lighting center is not coaxial with the viewing head, the image in two eyepieces will be different greatly. One may be dark; another may be dazzling bright. The bulb has been placed correctly in our factory. Keep it centering when changing the bulb.

Caution:

-Before changing a bulb, ensure that the microscope has been disconnected with the power source.

-The new bulb must have the same specifications as the changed one.

-When the illuminator is a halogen lamp, it is very hot near the illuminator. Don't worry about it, but it is necessary to take the combustible material (such as gasoline, plastic, ethanol, cloth and paper) far away from the microscope.

-When the halogen bulb is changed, wait until it is cool enough, otherwise the hot bulb will burn your fingers.

-Don't leave any dust and fingerprints on the bulb, otherwise it may affect its life and illuminate efficiency.

C) How to use

1. Unpack the microscope and its parts carefully. Check and sort out all parts according to the packing list. The microscope is supplied with an expanded two-part Styrofoam/polystyrene case. This case should be used for storage, transport, and shipping. Microscopes without proper packing are usually damaged during transport and shipping. **Keep Styrofoam box for future use for shipping and/or repairing.**

In a clean, dry and dust free environment, place the microscope and parts on a sturdy desk or table for initial use and/or assembly. **Do not touch any lens surfaces while handling the microscope. It may adversely affect the image quality.**

2. Working surroundings required:

   Room temperature: 0°C-40°C

   The highest relative humidity: 85%

   High temperature and humidity can cause mildew and damage the instrument.

3. Take the objective dust cover away from the objective hood and place the specimen you wish to magnify on the stage plate. Look at the stage from side to side and try to center the specimen over the stage plate. The stage clips may be used to hold the specimen in place, if desired and/or possible.

4. Turn on the illuminator or lead the natural light to the specimen. **Caution: The power supply voltage must be fitted to the microscope; otherwise, it will damage the circuit and bulb, even lead to insecurity**

5. Insert a pair of eyepieces into the separated eyepiece tubes. Grasp the separated prism housings with your hands. Then gently push the housings together or “pull” them apart to match their distance between your own eyes until both fields become one. Turn the focusing knob to raise or lower the viewing head and focus the objectives on the specimen.

Because there may be differences in the focusing ability of each of your eyes, the left eyepiece is mounted into a diopter control. To relieve eyestrain, the diopter control now be adjusted while viewing through the stereo. Close your left eye and focus carefully on the right eye using the focusing knob. Now close the right eye and view only with the left eye. Grasp the knurled knob on the diopter control and rotate to the left or right to bring the image into fine focus for the left eye. The eyepieces are now adjusted to your eyes.

When the microscope is equipped with two or three sets of paired objectives, you can hold the knurled ring and rotate the objective hood clockwise or counterclockwise until it clicks and stops selecting the different magnification.

The total magnifications of the microscope are determined by the power of its eyepiece and the power of its objective. For example, a 10X eyepiece and a 2X objective give you 20X magnifications. This means what you are viewing is 20 times greater than you would see with your naked eye.

The circular area you see through the eyepiece is the field of view. As the specimen you are looking at is magnified, you only see a small section of it. Thus, the lower the magnification is, the wider the field of view is. At 10X magnification, the field of view using a standard 10X eyepiece is 18mm. When using a super wide 10X eyepiece, the field of view is 23mm. At 20X magnification, the field of view using a standard 10X eyepiece is 9mm.

D) Maintenance and care of your microscope:

1. Unpack the microscope carefully to prevent the accessories from dropping down and damaging.

2. All lenses and the viewing head are calibrated strictly, don't try to dismantle them apart by yourself.

3. Keep the mechanical parts away from dust and add no corrosiveness lubricating grease into the sliding sections at regular intervals. Keep the optical elements clean when wiping the instrument.

4. Keep the instrument in a dry and cool place. When it is not being used, a) disconnect it with the power source; 2) Put the eyepiece dust cover and objective dust cover back; 3) Put a big dust cover over the whole set.

5. When specks or smears appear in the field of view, the optics should be cleaned. If the specks move when rotating the eyepiece, clean the top of the eyepiece. First brush it with a soft camel hairbrush, and then clean it with lens paper, or clean cotton cloth to remove dust particles. If the specks don't move when rotating the eyepiece, should clean the front lens of the objective as the same way. Do not take the objectives apart; qualified servicemen should only do this.

6. The focusing mechanism of the microscope should be removed periodically (once a year). Before lubricating, remove old film and clean slide ways thoroughly. The illuminator is not too sensitive to dust, nonetheless, it is wise to keep these parts clean, and all dirt film in the light pathway will affect resolution. A soft lint-free cloth is satisfactory.

7. The finish of the microscope is hard epoxy and is acid resistant. It is extremely durable and stands up well under rough use. Use soft cotton cloth to wipe clean. When cleaning the frame, exercise care not to smear the optical elements.

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