



Vabiooth VB-M006 Compound Binocular Microscope Instruction Manual

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Vabiooth VB-M006 Compound Binocular Microscope Instruction Manual



This operation manual is for the Model VB-M006 microscope . We recommend that you carefully review this manual prior to operating this device in order to optimize safety and performance, and to become fully familiar with its use. Keep this operation manual in an easily accessible place for future reference.

WARNING: To prevent fire and electrical shock, do not expose unit to rain or moisture.

CAUTION: No user-serviceable parts inside. Refer servicing to qualified service personnel.

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Before use

1. As the microscope is a precision instrument, always use it with care. Avoid dropping or shaking during operation. Make sure the microscope is placed on a flat surface.
2. Do not put the microscope in direct contact with the sun. Do not expose the microscope to high temperature, damp, or dusty environment.
3. When moving the microscope, you should use both hands, typically one hand under the base and one hand on the arm (stand) of the microscope and set it down carefully.

CAUTION: It will damage the microscope if you hold the microscope either by the stage, focusing knob or head.

4. Be sure the microscope is unplugged before replacing the bulb or fuse and wait until the bulb has cooled down.
5. This microscope has a built in voltage transformer and can be used with wide voltage range from 110 to 240V.
6. Only use the power cord supplied with the microscope.

Maintenance

1. Wipe the lens gently with a soft lens tissue. After every use with oil or fingerprints clean the lens surfaces with lens paper or lens paper moistened with a little rubbing alcohol. If you do not have lens paper make sure to use a lint free towel or cloth.

CAUTION: Alcohol is flammable. Do not place this chemical near fire or fire causing source. You should use this chemical in a ventilated place.

2. Don't use organic solution to wipe the surfaces of the other components.
3. If the microscope comes in contact with a liquid, then you should turn off the power immediately and wipe it dry.
4. Never disassemble or service the microscope yourself.
5. After using, cover the microscope with a dust cover.

Diagram

VB-M006-B Microscope Diagram



Microscope Diagram



VB-M006- Microscope Diagram



Assembly

Install the Objectives

Install the objective into the microscope nosepiece from the lowest magnification to the highest, in a clockwise direction.

Insert the Eyepieces

1. Remove the eyepiece tube covers.
2. Insert the eyepiece into the tube completely.

Install plug

Insert one side of the plug into the back socket of the microscope.

Operation

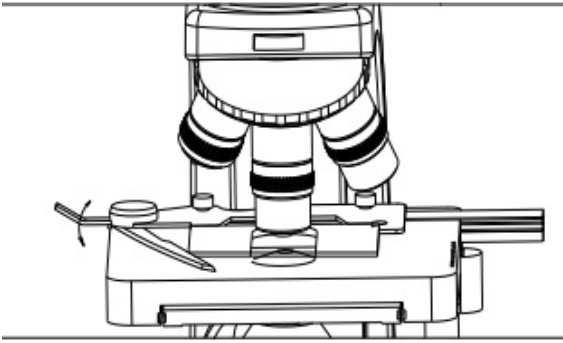
Turn on

1. Insert the plug into an outlet and turn on.
2. Adjust the light adjustment knob until you get the suitable brightness. **(See fig.1)**



Set the specimen slide

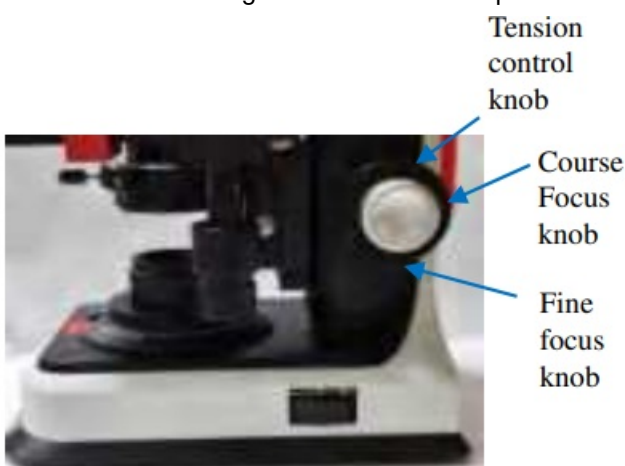
1. Push the arm of the specimen holder back.
2. Insert the slide with the cover glass facing up and allow the arm of the specimen holder forward. **(See fig.2)**



3. Rotate the X and Y-axis knobs on the mechanical stage to move the specimen to the center (the center of the objective).

Adjust focus

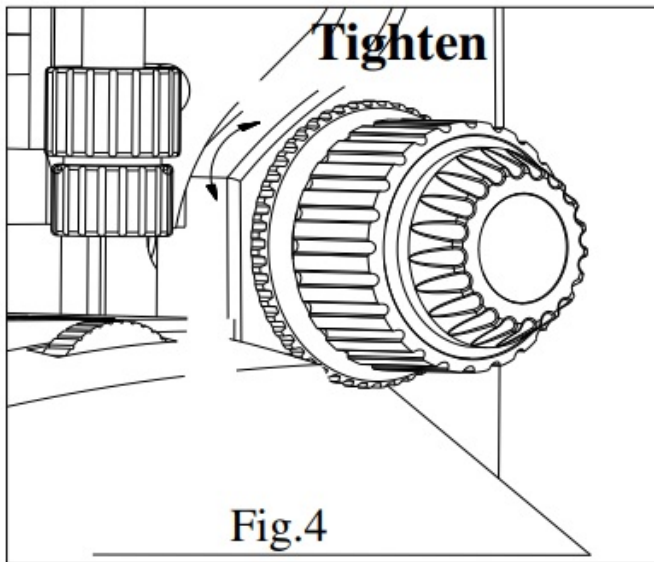
1. Move the objective 4X into the light path.
2. Rotate the coarse-focusing-knob until the image appears.
3. Turn the fine-focusing-knob to make the specimen clearer. **(See fig.3)**



- When using the 4X and 10X objective, open the aperture diaphragm and field diaphragm to the widest position.

Adjust tension of the focus

If the course focus knob is difficult to turn when focusing or the stage drifts downwards by itself, you can solve the problem by adjusting the tension adjustment ring. Turn clockwise to tighten the controls or counterclockwise to loosen the controls **(See fig.4)**



Adjust the interpupillary distance

When observing with both eyes hold the bases of the base of the eyepieces and rotate them around the axis until there is only one field of view. **(See fig.5).**



On the left and right eyepiece base should point to the same number. The number is the interpupillary distance.

4-6 Adjust diopters

Rotate one eyepiece to the "0" position using the white thread. This should be done to your dominate eye, then using that same (one side only) eyepiece focus on an specimen clearly. Now observe the other eyepiece and rotate its diopter adjusting ring until the image is clear in that eyepiece. **(See fig.6)**

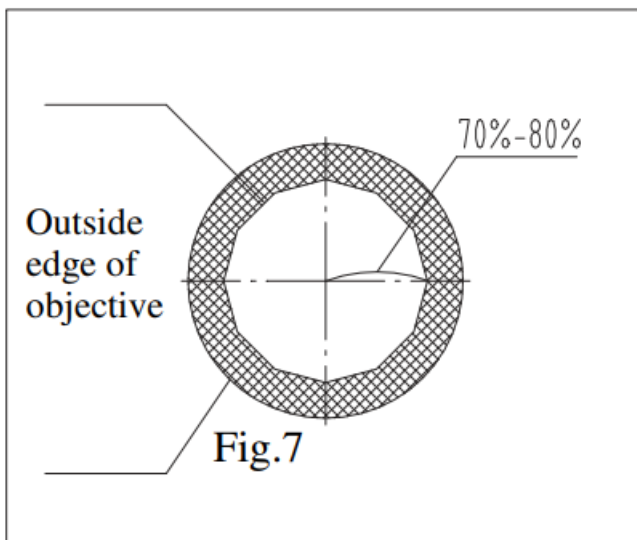


Adjust diaphragm

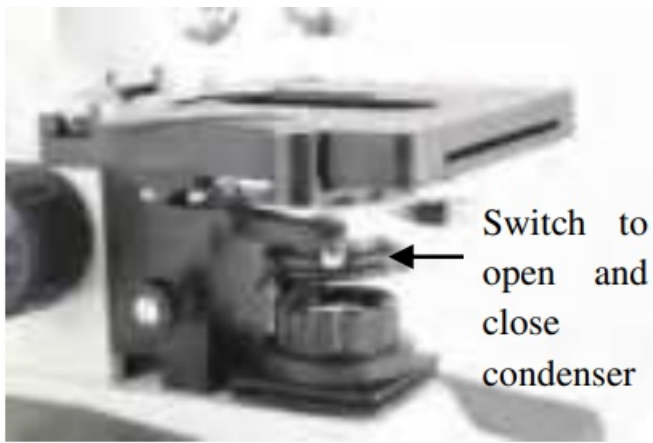
The diaphragm can prevent other light from entering and strengthen the image by limiting the beam of light entering the condenser. When the image of the diaphragm is just on the edge of the field of view, you can obtain the clearest image.

Adjust aperture diaphragm ②

The aperture diaphragm decides the numerical aperture of the illumination. If the N.A. of illumination is matching with N.A. of the objective②, you can obtain better resolution and the contrast. If the contrast is low, you can adjust the N.A. of the condenser to 70%-80% of the N.A. of the objective when using. Adjust the upper diaphragm ring until you see the image like above (See fig.7).

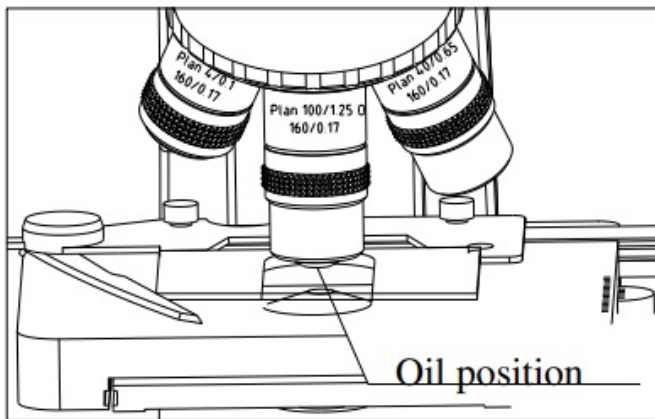


Use of diaphragm and put the N.A. of condenser ② to 80% of the objective. e.g.: objective 40X (N.A. =0.65), put the aperture diaphragm to about $0.65 \times 0.8 = 0.52$. (See fig.8)



Use the oil objective

1. Use the objective 40X to focus the specimen.
2. Put a drop of oil on the specimen. (**See fig.9**)



3. Rotate the nosepiece to place the 100X objective (oil) into the light path. Then use the fine focusing knob to focus.
 - Make sure there is no air bubble in the oil.
 - A.** Take out the eyepieces to examine the air bubble. Open the aperture diaphragm and field diaphragm fully and observe the edge of the objective from the tube without the eyepiece.
 - B.** You can rotate nosepiece slightly and swing the oil objective some times to remove the air bubble.
4. After using oil, clean the 100X lens with clean lens paper using rubbing alcohol if the oil does not come off easily

Use the filter

Filter can make the background softer. There is a filters: Frosted. (You also place the Polarizer this position when using the optional simple polarizing set)



Specification

VB-M006 Microscope general specifications

Eyepieces	WF10X, WF16X and WF25X eyepieces
4 Objective lenses	4X, 10X, 40X (Spring), 100X (Spring, Oil)
Magnification levels	40X, 54X, 100X, 160X, 250X, 400X, 640X, 1000X, 1600X, 2500X
Interpupillary distance	55-75mm
Adjustable ocular diopter	+/- 5dp
Head	30 degree inclined, 360 degree rotatable trinocular head
Mechanical stage	Mechanical stage with rack stops, 110x120mm
Mechanical stage	Stage x-y travel range: 70x30mm
Abbe condenser	NA 1.25 Abbe condenser with iris diaphragm
Knobs	Coarse coarse and fine focus knobs
LED light	Transmitted illumination with 1W LED bulb, adjustable brightness
Power supply	Type-C 5V/1A 100-240V power input by AC adapter or 5A power supply, low voltage input, which's safe and power-saving, portable

Troubleshooting

Symptom	Cause	Remedy
Optics		
(1)The lamp is bright, but the light in the field of view is not bright enough.	Field diaphragm is not large enough.	Enlarge the field diaphragm.
	Condenser is too low.	Adjust the condenser.
	Condenser is not centered.	Center the condenser.
(2)The side of the field of view is dark or not even.	The nosepiece is not in the right position.	Turn the nosepiece into the right position.
	Stain or dust has accumulated on the condenser, objective, eyepieces, and base lens.	Clean the lens.
	Condenser adjustment needed (see step 3-7)	Center the condenser.
(3)Stain or dust is observed in the field of view.	Stains have accumulated on the specimen.	Clean the specimen.
	Stains have accumulated on the lens.	Clean the lens.
(4)Unclear image	No cover glass on the specimen slide.	Add the cover glass.
	The cover glass is not standard.	Use a standard cover glass with thickness 0.17mm.
	The cover glass faces down.	Put the cover glass to face up.
	The immersion oil has accumulated on the dry objective.	Clean thoroughly.
	The immersion oil is not used for oil objective 100XR.	Use immersion oil.
	Air bubble in the immersion.	Get rid of the air bubble.
	Use wrong immersion oil.	Use correct one.
	The aperture is not opened correctly.	Adjust the iris diaphragm.
	Stain or dust has accumulated on the lens in the inlet of the head.	Clean the lens.
	The condenser is not in the right position.	Adjust the condenser.
(5)One side of the field of view is dark or the image moves while focusing.	The specimen slide is not fixed.	Fix with clips.
	The nosepiece is not in the right position.	Turn the nosepiece into the right position.
	Condenser is centered incorrectly.	Center the condenser.
(6) The eyes feel tired easily. The right field of view doesn't superpose with the left.	Interpapillary distance is wrong.	Adjust the interpapillary distance
	Diopter adjustment is wrong.	Adjust the diopter.
	The eyepiece for the right is different from the left.	Use the same eyepieces.

Symptom	Cause	Remedy
Mechanics		
(1)Can not get the objective focused.	The cover glass faces down.	Put the cover glass to face up.
	The cover glass is not standard.	Use a standard cover glass with thickness 0.17mm.
(2) The objective touches the cover glass while turning the nosepiece.	The cover glass faces down.	Put the cover glass to face up.
	The cover glass is not standard.	Use a standard cover glass with thickness 0.17mm.
(3)Coarse focusing knob is too tight.	Tension knob is too tight.	Loosen a little.
(4)Stage declines itself and can't stay in the focus plane.	Tension knob is too loose.	Tighten a little.
(5)Coarse focusing knob can't rise.	The limit stop knob is locked.	Loosen the knob.
(6)Coarse focusing knob can't decline.	The base of the condenser is too low.	Raise the base.
(7)Can not move the slide smoothly.	The slide is not fixed correctly.	Adjust it correctly.
	The movable specimen holder is not fixed properly.	Adjust it correctly.
(8)The image moves obviously when touching the stage.	The stage is fastened incorrectly.	Fasten the stage correctly.
Electrical		
(1)The bulb does not work.	No power supply.	Check the connection of the power cable.
	The bulb is not inserted correctly.	Insert it correctly.
	The bulb burnt out.	Replace it.
(2)The bulb burnt out usually.	Use a wrong bulb.	Replace with a correct one.
(3)The field of view is not bright enough.	Use a wrong bulb.	Replace with a correct one.
	The use of light adjustment knob is wrong.	Adjust correctly.
(4)The bulb flickers or the brightness is not stable.	The bulb will burn out soon.	Replace with a new one.
	The wire doesn't connect all right.	Connect correctly.

How to install the monitor or camera?



1. Rotate the head of the tube counterclockwise, the bottom of the tube twisted on the machine
2. Then the tube will be divided into 2 parts, one is for 23.2mm ocular port or tube, the other is for C-Mount



The Monitor fits for the 23.2mm tube, the camera is C-Mount

1. Turn on the power button
2. Select AV1 channel
3. Monitor "M" can adjust BRIGHTNESS, CONTRAST, COLOUR, ZOOM TCON, LANGUAGE ("Vabiooth" Youtube channel has Instructional video)

Microscope Camera (Only for 5MP Camera Version)

Features:

1. High-speed USB2.0 interface, up to 480Mb / s.
2. Large area array CMOS progressive scan image sensor.
3. Support for static and dynamic image capture.
4. Exposure time: any adjustable.
5. 8bit uncompressed raw image data, software implementation Bayer color conversion plug and play installation.
6. Support WIN8 / SP4 / XP / VISTA / WIN7 / WIN10 / Mac operating system.
7. The image is stable and reliable, after a long period of rigorous testing performance indicators.

Can be widely used in pattern recognition, industrial testing, medical microscopy and traffic management and machine vision and other fields .More widely used in various fields of microscope and image acquisition of various occasions.

C-Mount eyepiece interface (adapter), designed for the microscope .

Camera Specification:

- **Image sensor:** 1 / 2.5" color CMOS image sensor
- **Pixels size:** 2.2 μm \times 2.2 μm
- **The spectral response:** 400 nm to 1000 nm
- **Scan mode:** progressive scan
- Pure hardware 5 megapixel image sensor, no compression, no interpolation
- **Resolution:** 640X480,1280 \times 1024,1600 \times 1200,1920 \times 1080 2048 \times 1536, 2592 \times 1944
- **White Balance:** Auto/Manual
- R.G.B value setting independent
- **Auto Exposure Control:** Auto/Manual
- **Image output:** USB2.0,480Mb/s
- **Operating temperature:** 0°C-50°C

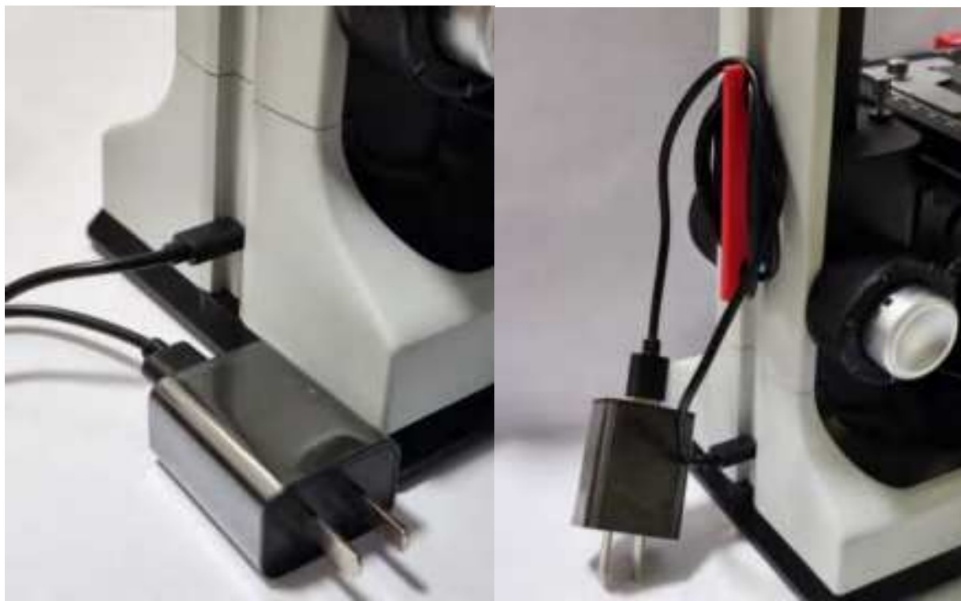
The kit includes a software CD with the Imaging application and calibration slide to ensure the accuracy of measurements. Please note: the software comes on a CD- Rom. If your computer does not have a CD drive. Software Download link: <https://bit.ly/3XEZvxX>



Dual Power Supply & Power cord hanger design



3AA Power Supply, portable and no need to plug in.



Type-C 5V/1A 100-240V power input by AC adapter, low voltage input, which's safe and power-saving.

Vablooth provides 18 months warranty and lifetime free service. If you encounter any issues with the product, Please contact the Vablooth team to promptly receive troubleshooting tips or a replacement.

FAQ

1) How to install the microscope?

2) What are the options for eyepieces?

To provide a better customer experience, all models' eyepieces have been upgraded to WF25X eyepieces, and if you need WF10X, WF16X, 2X Teleconverter, Please contact us.

3) How do I prevent dirt and grime from getting into the eyepieces and objectives?

Remind the user to use the Vablooth Microscope Cover to keep your microscope covered all the time when not in use. This will help keep the eyepieces and objectives from water and dust. If you need the microscope cover, please contact us.

Contact us



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Vablooth

(How-to videos, warranty details)

Vabiooth

Documents / Resources

	<p>Vabiooth VB-M006 Compound Binocular Microscope [pdf] Instruction Manual VB-M006, VB-M006 Compound Binocular Microscope, Compound Binocular Microscope, Binocular Microscope, Microscope</p>
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References

- [📄 VB-M006-Software.zip - Google Drive](#)
- [User Manual](#)