

Operating instructions

omegon



Omegon® BioMon

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Omegon® BioMon

Congratulations on the purchase of your new Omegon® BioMon. This microscope system is used to examine thin wafers and fluid samples using the bright field contrast method. Suitable for schools and higher education courses in biological microscopy.

1. Preparation.

Before using for the first time, read these operating instructions carefully so that you can make full use of all the options this microscope has to offer. The safety-related instructions on how to handle this device are also described here and must be followed.

1.1. Technical data.

- Biological, monocular transmitted lighting microscope;
- Dimmable lights: LED;
- Achromatic lenses: 4x, 10x, 40x, 100x specimen protection for 40x and 100x lens;
- Work distances of the lenses:
4x = 37.50 mm, NA = 0.10;
10x = 7.63 mm, NA = 0.25;
40x = 0.63 mm, NA = 0.65;
100x = 0.20 mm, NA = 1.25;
- Eyepiece: WF 10x;
- Magnifications: 40x, 100x, 400x, 1000x Oil;
- Abbe condenser: NA 1.25 (with iris diaphragm);
- Coaxial mechanical stage: Fine focus adjustment knob in X / Y axis;
- General and fine focusing;
- Filter holder.

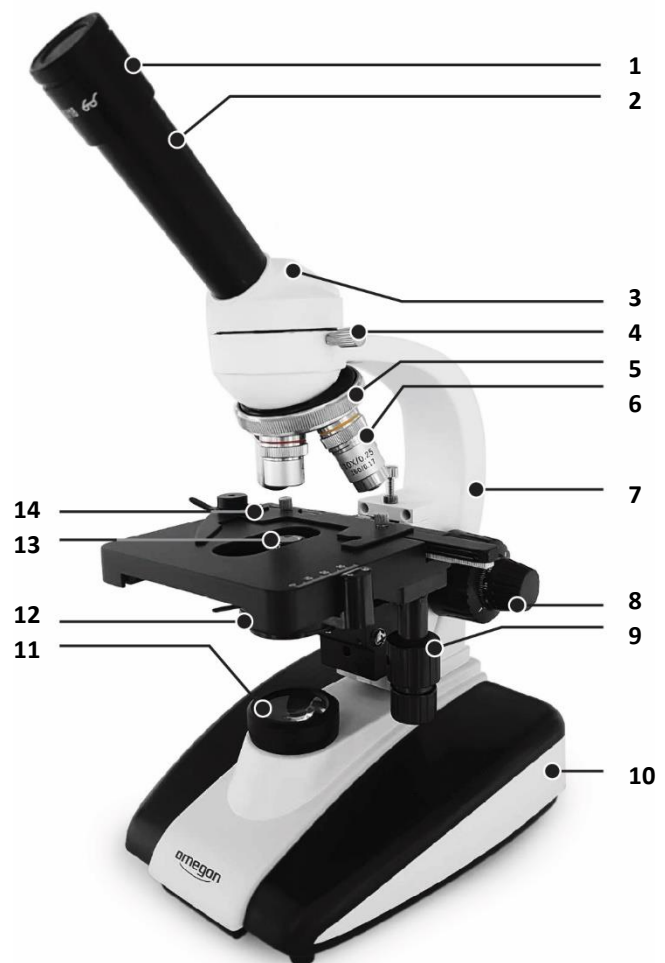
1.2. Delivery scope.

1. Eyepiece WF 10x;
2. Eyepiece tube;
3. Prism head;
4. Locking screw;
5. Revolving nosepiece;
6. Lenses;
7. Tripod;
8. Focus with reduction;
9. Coaxial fine focus adjustment knob for mechanical stage;
10. Microscope base;
11. LED transmitted lighting;
12. Specimen stage;
13. Abbe condenser;
14. Mechanical stage.

1.3. Operation of the device.

1.3.1. Take the microscope out of the polystyrene packaging and place it on an even and stable work surface.

1.3.2. Remove the plastic packaging materials and the dust caps on the eyepiece tube and the tripod for the eyepiece tube.



1.3.3. Familiarise yourself with your new microscope. Move all mechanical parts, such as the focus, the condenser position, the iris diaphragm, filter holder etc. carefully by hand and see how they work and what effect they have.

Caution:

The microscope must be earthed (this is guaranteed if normal shockproof sockets are used).

1.3.4. Then connect the device to the power supply correctly.

1.3.5. Ensure that the power supply corresponds to the specified voltage.



- A. Mains supply 230V;
- B. Glass fuse;
- C. On/off switch;
- D. Brightness control – dimmer;
- E. Mechanical stage with vernier scales.
- F. Aperture control;
- G. Abbe condenser;
- H. Coaxial adjustment knob – mechanical stage.

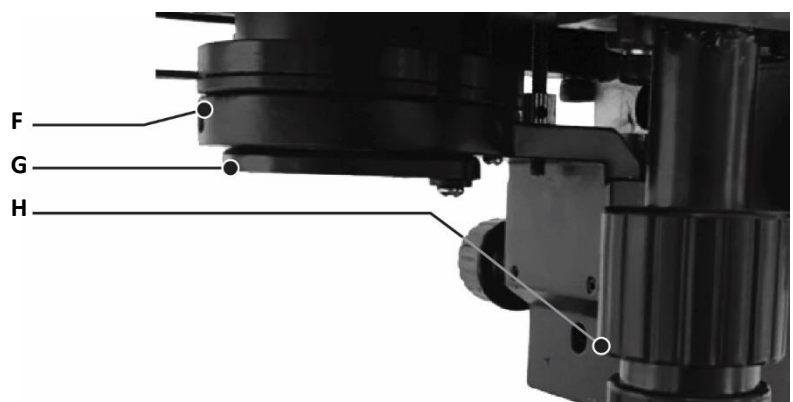
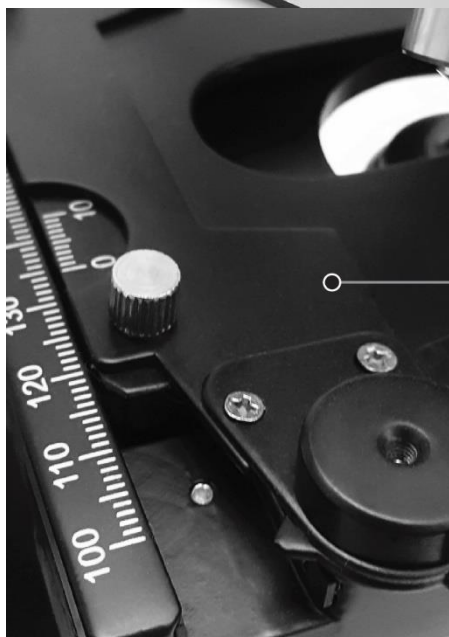
2. Commissioning

2.1. Switch the device on and set the brightness on the dimming wheel to a pleasant level.



2.2. Carefully place a slide with a prepared specimen that you want to examine onto the specimen stage and affix it with the spring-mounted clamp of the holding unit of the mechanical stage.(14)

2.3. The brightness of the light can be changed by setting the pinhole aperture on the condenser. You can achieve the best possible lens resolution when the design-related aperture (pinhole aperture) of the lens is set. If the examined specimens are replaced, please remove the eyepiece to achieve the best possible lens resolution. The size of the pinhole aperture can now be seen in the eyepiece tube. It is best if the pinhole aperture is set so that it is slightly smaller than the lens aperture.



Caution:

The pinhole aperture not only serves to set the brightness. This is set with the corresponding dimming wheel. Light beam and brightness are not the same.

2.4. Turn the filter holder toward the outside. If necessary, insert a filter and move the holder back to the starting position, i.e. between the light source and condenser.

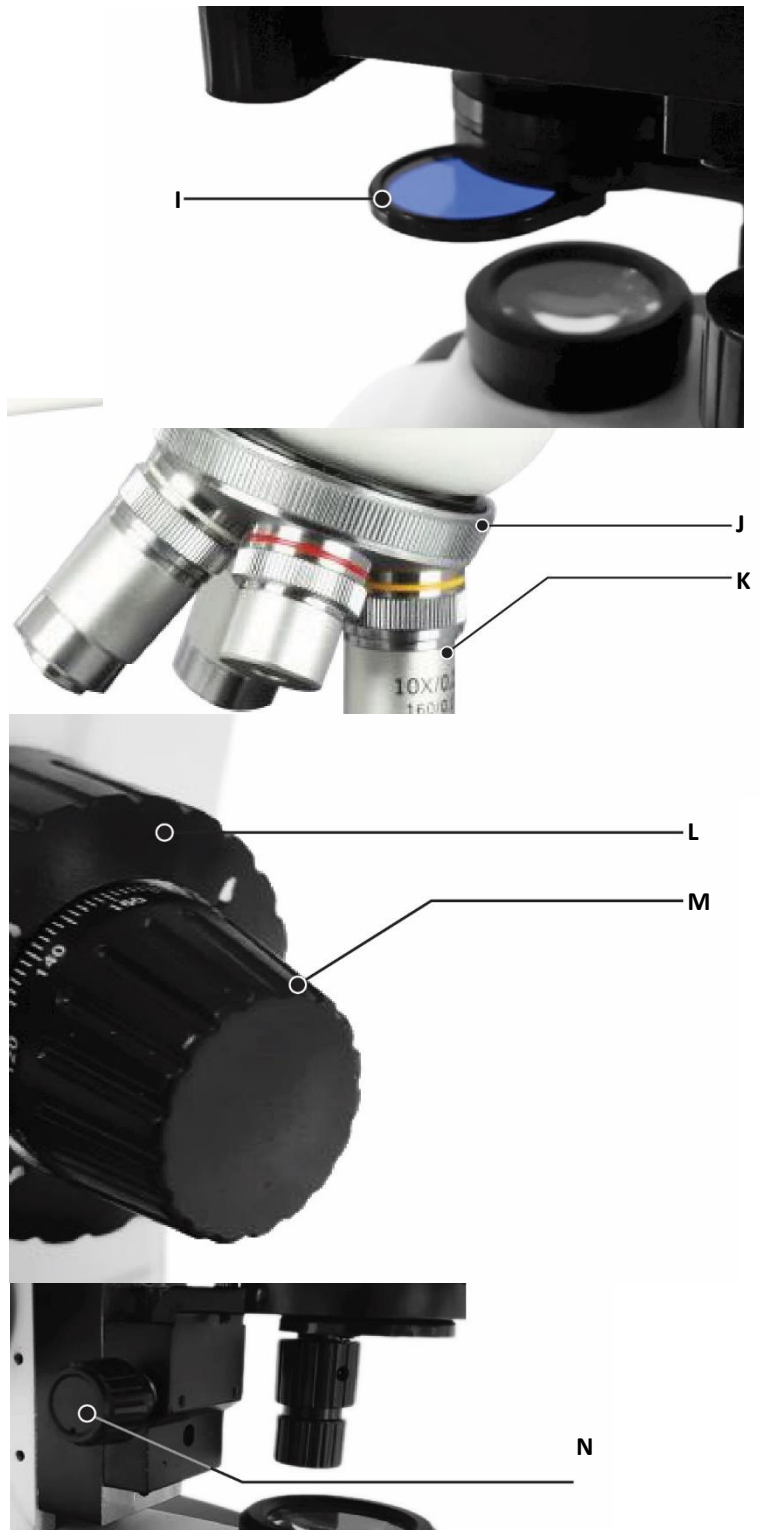
2.5. If you want to change the magnification, turn the revolving nosepiece (5) and thereby change the lenses 4x - 100x. Ensure that the lenses do not collide with the specimen during swivelling. It is recommended moving the specimen stage down slightly to leave enough space between the lens and the specimen and then to re-focus. The correct lens change is accompanied by a clear clicking sound.

2.6. When you set the focus, you should always ensure that the lens does not touch the specimen on the mechanical stage. Therefore move the knob (8) for the general focus until the lens is 3 mm above the cover glass of the specimen. Change the general setting slowly until you can see an almost sharp image, and then use the fine setting of the focus to achieve perfect image clarity. If you now select a higher magnification, i.e. a different lens, you only need to turn the fine setting to reach image clarity again.

2.7. By turning the coaxial specimen stage mechanism, the specimen can be moved precisely and sensitively in the Y and Z axis through the eyepiece field of vision. (9)

2.8. Using the focus knob on the side that moves the condenser from below to the specimen or away from the specimen, the condenser can impact on the level of lighting and also the image contrast.

- I.** Filter holder, swivel-mounted;
- J.** Revolving nosepiece;
- K.** Lenses (4x,10x,40,100x);
- L.** Focusing 1:1;
- M.** Focusing 1:10.
- N.** Height adjustment knob Abbe condenser



3. Maintenance, care and cleaning.

3.1. Maintenance.

3.1.1. To change the LED, release the large slotted screw below the microscope, and then swing the locked lid open. You can now remove the faulty LED from the socket located on the inside of the lid and replace it by a new LED.

Caution:

The bright LED becomes relatively hot during operation or shortly afterwards.

Do not touch the new LED with your hand. Fingerprints and soiling on the LED can impair the brightness. Clean the LED with a clean, soft cloth. Only touch the LED with the same technical specifications when wearing clean gloves or a piece of gauze, and insert the new LED into the designated base. Close the lid again and retighten the previously mentioned slotted screw.

Caution:

Ensure that no cables are caught when the lid is closed.

3.1.2. To change the fuse, pull out the fuse compartment that is in the lower part of the IEC socket. This may be slightly stiff. Take out the old fuse and replace it with a new fuse with identical technical specifications. Now push the fuse compartment back in completely.

3.2. Care.

3.2.1. The microscope should be stored in a cool, dry and clean place. It may not come into contact with acids, alkalis or vapours. Do not expose the device to direct sunlight.

3.2.1. The work environment should not exceed or fall below a room temperature of between 0°C and + 40°C. The maximum relative humidity is 85%. If this value is exceeded, the device may not be used. (Risk of an electrical shock)

The microscope was adjusted and tested precisely before it left production. It must not be dropped and must not be exposed to any hard impacts or pushed over.

3.3. Cleaning.

3.3.1. If dust gets onto the lens, remove with bellows and then clean the lens carefully with a soft brush. Remove oil or fingerprints from the lens carefully with a cloth (not microfleece) or with an absorbent paper cloth or white cotton cloth wetted with a little isopropanol (alcohol from the chemists).

3.3.2. Do not clean the surface of the lens with isopropanol too frequently. Excessive use can create scratches and damage the quality, thereby reducing the quality of the light transmission and impairing the quality of the image.

3.3.3. Clean the mechanical parts regularly.

3.3.4. If the microscope is not being used, switch it off and disconnect from the mains supply.

Always cover the device with the dust hood provided after use.