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ideas for vision

CxL Phase Contrast Kit
User Manual

To ensure correct use of this instrument and to avoid injury during operation, read this manual completely before use.

9136000-795

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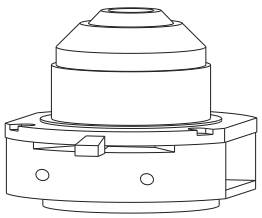
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INTRODUCTION

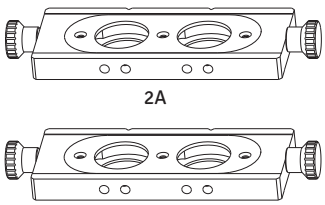
Phase contrast is a light microscopy method developed on the principle that speeding up the direct light path causes destructive interference patterns in the viewed image. These patterns make details in the image appear darker against a light background. To create this interference, a system of rings located both in the objective and in the condenser must overlap. When they are aligned correctly, the light waves from the light source reach your eye one-half of a wavelength out of phase, and details of the specimen are greatly enhanced. Phase contrast is useful only for specimens that are colorless and transparent and usually difficult to distinguish from their surroundings. Such specimens are called “phase objects”. Examples of phase objects include cell parts in protozoa, bacteria, sperm tails and other types of unstained cells.

PACKING LIST

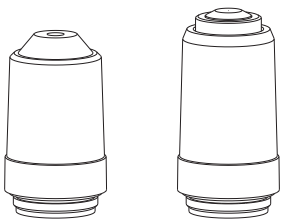
CxL Phase Contrast Kit (9136000)



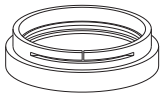
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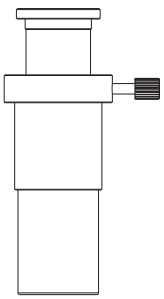
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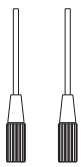
3



4



5



6

1) Abbe condenser (3124041)
2A) 40X phase annulus slider (9136045)
2B) 10X phase annulus slider (9136040)
3) Phase contrast 10X (9132010) and 40X (9132040) objectives
4) Green filter (3126065)
5) Centering telescope eyepiece (3126005)
6) Allen keys

Please make sure that all contents of the phase contrast kit are intact. If any physical damage is visible, contact your local distributor.

INSTALLATION

1. Loosen the thumb screw (1) and remove the condenser. Replace it with the new Abbe condenser supplied in the phase kit.
2. Hold the slider with its printed face toward you and the two index slots at the rear, so that the printing reads the right way up. Remove the left-hand thumbscrew of the phase slider and insert the slider gently into the slider slot at the right end of the Abbe condenser, so that when "10X" can be read from outside, the phase ring is in the field of view.
3. To make the phase slider ready for use, push it gently into the slider aperture of the Abbe condenser as shown in Fig. 1, with all text and the part number facing you. If it is inserted upside down or back to front, the phase rings may be out of line and distort the image. Once it is in place, re-tighten both thumbscrews to secure the slider.
4. Remove the standard objectives from the nosepiece and fit the 10X and 40X phase objectives. Objectives other than phase contrast objectives contain no phase rings and therefore do not produce a phase contrast image.
5. Remove the blue filter from its seat on the collector lens and replace it with the green filter supplied with the phase kit.

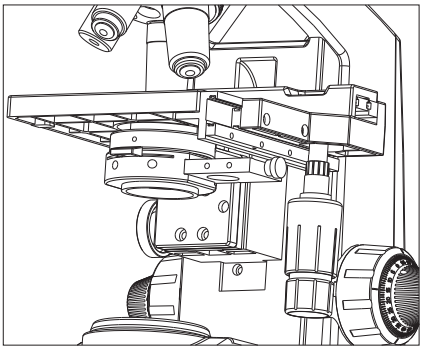


Fig. 1

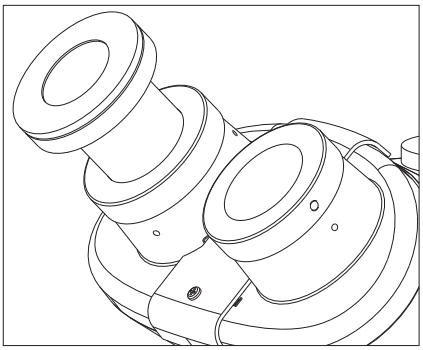


Fig. 2

SET-UP FOR PHASE CONTRAST MICROSCOPY

1. Turn the microscope on and close the diaphragm of the Abbe condenser to its minimum position by moving the condenser lever, which controls the amount of light reaching the condenser lens.
2. Next, engage the brightfield position by pushing the slider all the way in, and open the condenser diaphragm to a comfortable light level with the condenser lever. Place any specimen slide on the stage and focus the specimen with the 10X phase objective. Remove one eyepiece and insert the centering telescope eyepiece in its place as shown in Fig. 2.
3. Loosen the thumbscrew of the telescope eyepiece. While looking into the telescope eyepiece, extend the front lens until the dark ring of the 10X objective in the field of view is as sharp as possible (more detail is given on the next page). Tighten the thumbscrew of the telescope eyepiece; the image will remain in focus (Fig. 3).
4. Pull the phase slider out by one click stop to bring the 10X ring into position (you should be able to read "10X" on the front of the slider).
5. The front of the Abbe condenser has two holes for centering the phase annulus with the two Allen keys supplied, as shown in Fig. 4.

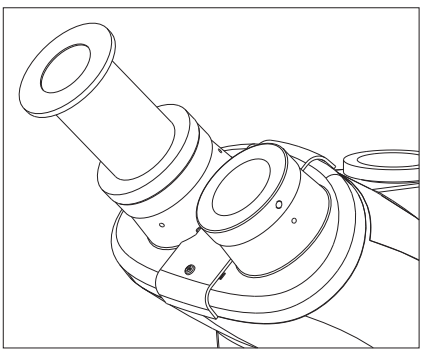


Fig. 3

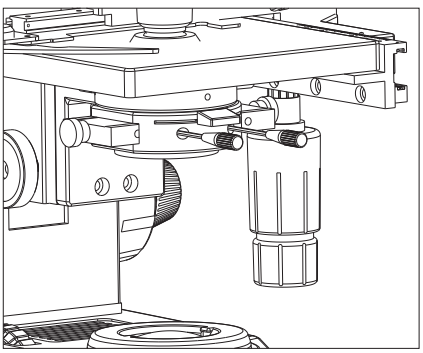
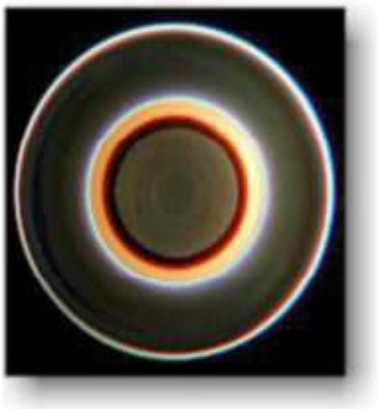


Fig. 4

CALIBRATING THE INSTRUMENT

6. While looking through the telescope eyepiece, you will see two rings, one dark and one bright. They will most probably be out of alignment. Using the two Allen keys supplied as shown in Fig. 6, align the rings so that they overlap as shown below.





7. Remove the centering telescope eyepiece and put the original eyepiece back in the eye tube. Place a specimen slide of your choice on the stage. The microscope is now ready for phase contrast observation.

8. Repeat the entire process for observation with the 40X phase objective, using the matching 40X phase annulus slider. In the neutral position of the phase slider (pushed all the way in), the microscope can be used for normal brightfield observation.

CARE AND MAINTENANCE

- Loose particles can be removed from the surface of the condenser, diaphragm or phase annulus by wiping gently with lens tissue moistened with acetone or methanol.
- Avoid leaving fingerprints on the surfaces of the condenser and phase annulus.
- When the phase contrast kit will not be used for a long time, store it in its original packaging.

Our policy is one of continuous development. Labo America, Inc. reserves the right to change design and specifications without prior notice.

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