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Lx 400 Darkfield Kit
User Manual

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

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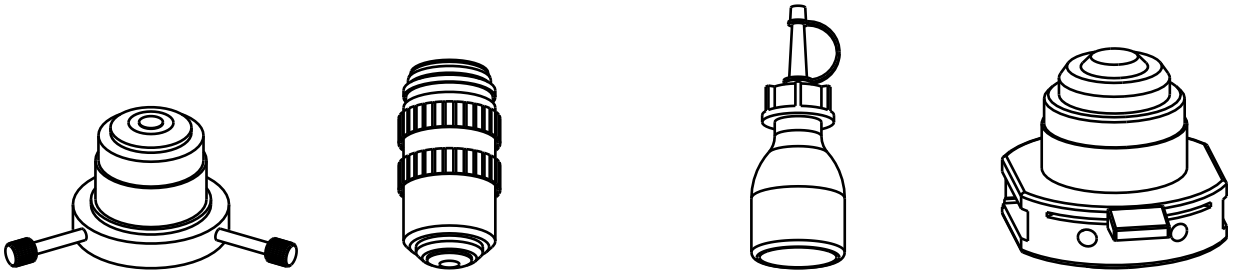
INTRODUCTION

Darkfield microscopy is a specialized illumination technique that uses oblique illumination to enhance contrast in specimens that are not imaged well under normal brightfield illumination. After the direct light has been blocked by an opaque stop in the substage condenser, light passing through the specimen from oblique angles at all azimuths is diffracted, refracted and reflected into the microscope objective to form a bright image of the specimen superimposed on a dark background.

Ideal specimens for darkfield illumination include minute living aquatic organisms, diatoms, small insects, unstained bacteria, yeast and protozoa. Non-biological specimens include mineral and chemical crystals, colloidal particles, dust-count specimens and thin sections of polymers and ceramics containing small inclusions.

PACKING LIST

Lx 400 Dark Field Attachment



1 2 3 4

1. Darkfield condenser (9124046)
2. 100X (SL, oil) achromatic objective with iris (9121105)
3. Immersion oil bottle (PK-035)
4. Darkfield condenser N.A. 1.25, oil, optional (3124044)

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

INSTALLATION

1. Remove the brightfield condenser from the substage assembly and gently push the darkfield condenser into its place, as shown in Fig. 1.

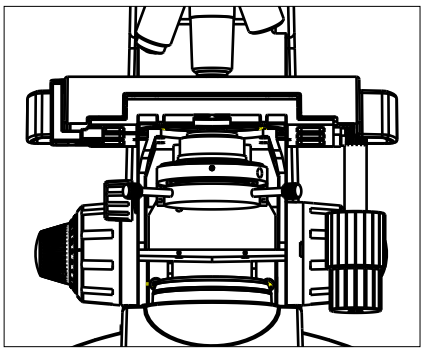


Fig. 1

2. Secure the darkfield condenser by tightening the thumbscrew provided, as shown in Fig. 2.

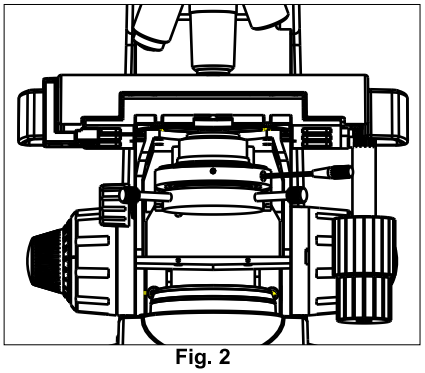


Fig. 2

3. Remove the 100X objective from the nosepiece adapter and attach the 100X (SL, oil) achromatic objective with iris, as shown in Fig. 3.

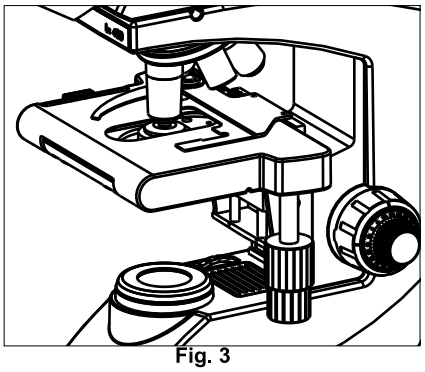


Fig. 3

4. Bring the darkfield condenser to its uppermost position and place a drop of immersion oil (PK-035) on it, as shown in Fig. 4.

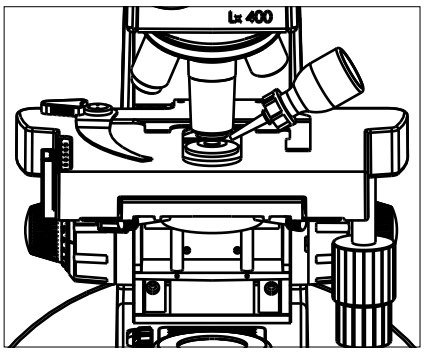


Fig. 4

5. Place the specimen slide firmly on the darkfield condenser so that it touches the drop of oil, as shown in Fig. 5.

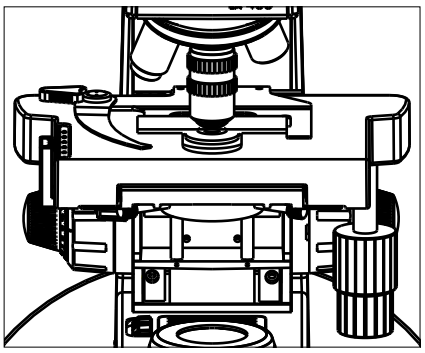


Fig. 5

CALIBRATING THE INSTRUMENT

6. Engage the 4X objective. While looking through the eyepiece, focus on the specimen slide; a bright ring of light will appear in the field of view. Bring this ring of light to the center of the field by adjusting the two thumbscrews on the condenser bracket, as shown in Fig. 6.

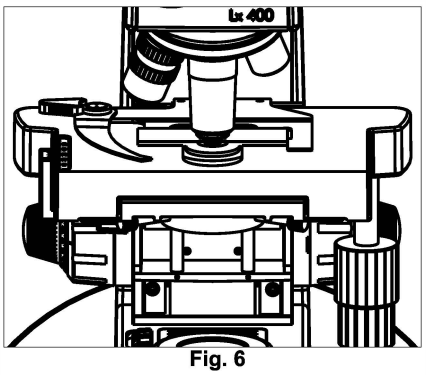


Fig. 6

7. Place another drop of immersion oil on the slide, as shown in Fig. 7.

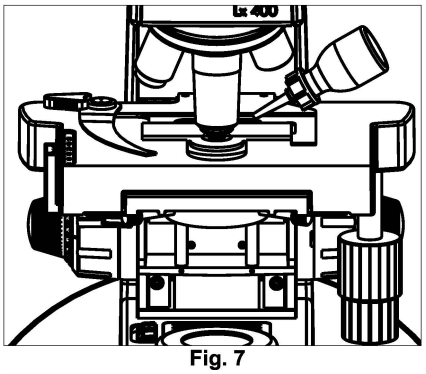
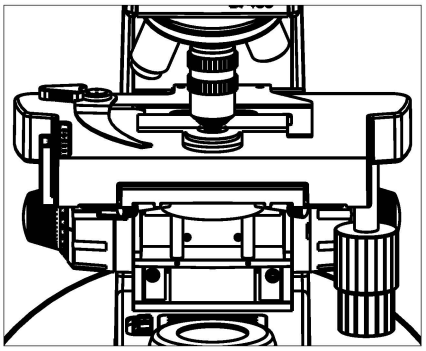


Fig. 7

8. Engage the 100X (oil immersion) darkfield objective. Keep the iris of the 100X objective open by turning the knurled ring clockwise. Contrast in darkfield can be increased or decreased by adjusting the iris opening of the 100X objective.


Fig. 8

Note: An optional darkfield condenser can also be used in place of the brightfield condenser for darkfield observation. In that case, replace the normal brightfield condenser with the darkfield condenser N.A. 1.25, oil (3124044); however, the result will not be as good as with the 9124046 darkfield condenser.

CARE AND MAINTENANCE

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

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