



ACCU-SCOPE®

EXM-150 Darkfield Annulus Installation and Operation



Nematode in brightfield.



Nematode in darkfield.

NOTE: If purchased with the microscope, your EXM-150 microscope should arrive with the darkfield annulus (stop) already installed.

NOTE: The EXM-150 darkfield annulus is designed for use only with models of the EXM-150 series microscopes with Abbe condensers (CAT# EXM-151, EXM-151-T, EXM-151-VT, and any of these models with digital cameras).

IMPORTANT: The darkfield annulus is effective with 4x and 10x objectives on the EXM-150 models specified above. It is not recommended for use with 40x or 100x objectives.

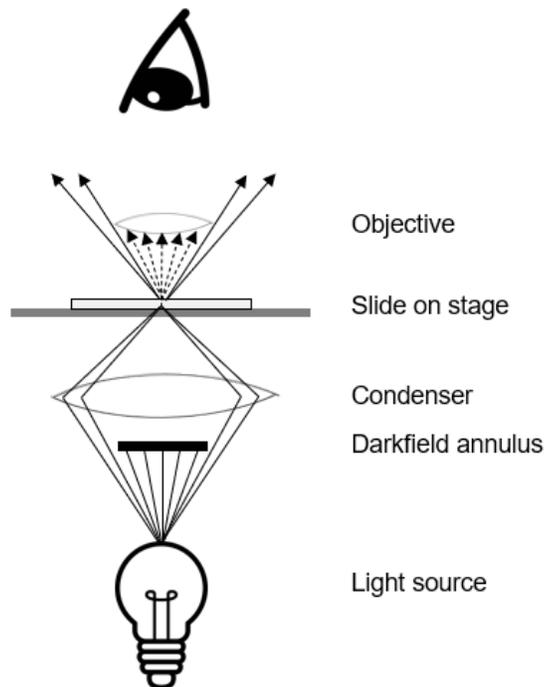


Darkfield annulus (CAT# 150-3220)

The Principle of Darkfield

Darkfield illumination generates a dark background to the specimen whereas brightfield illumination generates the familiar bright (some call it white) background or field around the specimen. In brightfield (BF) observation, light passes through the specimen and is collected by the objective for observation. Color and contrast information in the specimen is transmitted with the light, producing the colorful specimen image against a light background (no color or contrast).

In darkfield, light from the light source is presented to the specimen at a very high angle. In the absence of any specimen, the light would not ever be captured by the objective, passing right by it, and resulting in a dark (black) background. With the presence of any substance or specimen, light is scattered in many directions, some of which will make it into the objective and can therefore be observed. Some color information may be seen, but darkfield observation often appears monochromatic. Darkfield observation is useful with unstained specimens or specimens with little to no coloration.

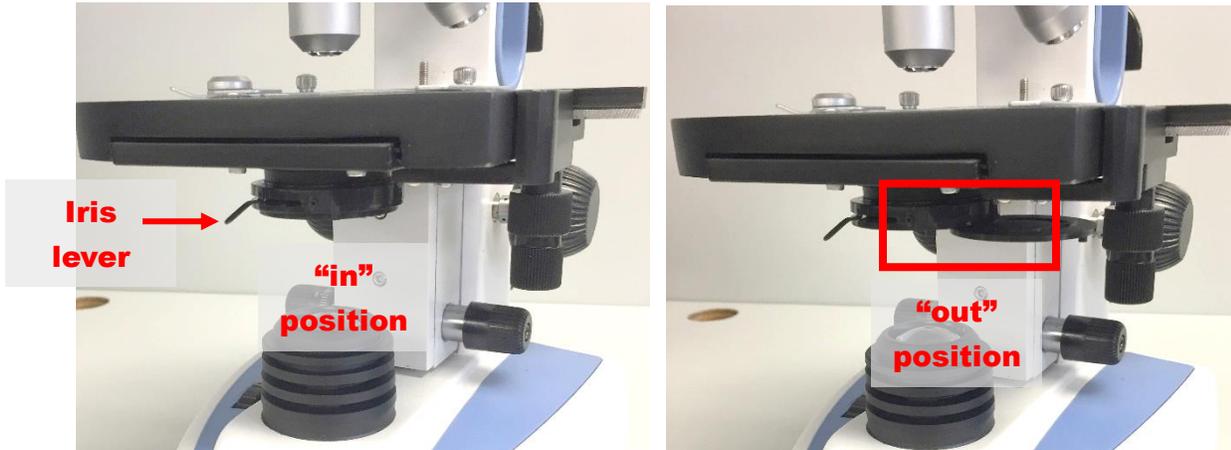


Installation

When ordered with the microscope, the darkfield annulus is already installed. No installation is required.

Operation

1. Turn on the microscope. Adjust light intensity at any time until illumination is bright enough and observation is comfortable.
2. Start with the darkfield annulus in the “out” position. Swing or rotate the darkfield annulus out of the light path. It should move freely in one direction, but bump against a stop in the other direction.



3. Place a specimen on the stage and focus with the 4x objective.
4. Open the condenser iris using the iris lever. While looking into the microscope, move the iris lever to open and close the iris – you will see the image change in brightness, and you will also see the “texture” change in the image (texture/contrast increase when the iris is closed down).
5. Swing the darkfield annulus into the “in” position. Observe the specimen. The field of the specimen should appear dark, and the specimen (and any debris, dirt, particles, etc.) should appear bright against the dark background.
6. Adjust the iris position to optimize the view. With some practice, you will be able to make these adjustments while continuously looking into the microscope.
7. Switch to the 10x objective and adjust the iris position as necessary to optimize the image.
8. Move the darkfield annulus to the “out” position to use brightfield observation. Adjust the iris to achieve the desired contrast in the image.