

Köhler Illumination Video Transcript

This video follows the Assembly Video and explains how to achieve Köhler Illumination.

To set up for Köhler illumination, flip the filters out of the light path. Open up the aperture iris, field iris, and the back focal plane iris on the objective.

Insert the resolution target into the sample stage. Make sure the chrome side is facing the objective to prevent spherical aberrations while imaging. Turn on the lamp. Then adjust the position of the sample stage with the adjuster knobs until it is in the middle of the light path. Also, adjust the stage micrometer until it is in the middle of travel.

In the ThorCam software, open the line scan and set the exposure appropriately to avoid overexposing the image.

Köhler illumination can be achieved in 3 steps:

The first step is to focus on the sample. Do a coarse focus by moving the objective back and forth until the features of the sample appear in the image. Then, a fine focus by adjusting the stage micrometer until the sharpest image is achieved.

The second step is to image the field iris onto the sample. Close the field iris down until the image is almost dark. Then, translate the condenser back and forth until you can see the field iris in the image. Be sure the field iris is centered in the image vertically; adjust the height if needed. Rotate the condenser until the field iris is centered horizontally. Move the condenser back and forth again until the field iris is in focus.

The third and final step is to image the lamp filament on the aperture iris. Open the field iris and move the collector lens back and forth until you can see the filament centered in the aperture iris. You can put in the green filter for better visibility. It is also helpful to use a card in front of the aperture iris to see the filament.

Now you have achieved Köhler illumination. The next video shows how to set up the back focal plane camera and achieve a darkfield image.