

# Setting up Koehler<sup>1</sup> Illumination

First: Turn on the microscope, and set the eyepieces and interpupillary distance<sup>2</sup>

1	Rack up condenser with top lens in place
2	Open the aperture (condenser) diaphragm all the way
3	Focus on specimen
4	Close down the field stop while viewing
5	Lower the condenser until the leaves of the field stop are in focus
6	Center the image of field stop with the centering screws located on the sides of the condenser (4°clock, 8°clock)
7	Open the field stop to edge of field, fine focus and open further to just clear field of view
8	Remove one of the eyepieces <sup>3</sup> ; You can now see the objective's back focal plane and the aperture diaphragm
9	Close the diameter of the aperture diaphragm so that it illuminates about 80% <sup>4</sup> of the observed area
10	Insert the eyepiece again. Your microscope is now set in proper Koehler Illumination mode, for optimum image quality.

**Note:** The above process should be followed every time a different objective is moved into place. Only after this procedure has become second habit, you will know when shortcuts are o.k.

<p><b>Benefits of Koehler Illumination:</b></p>	<ul style="list-style-type: none"> <li>* Evenly illuminated image</li> <li>* Minimized reflection or glare or effect of dust in the system</li> <li>* Minimum heating of specimen</li> <li>* Field diaphragm becomes a focus reference for easy focusing of specimen</li> <li>* Microscope is “all set” for employing contrasting techniques (Brightfield, Oblique, Phase, DIC, etc.)</li> </ul>
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<sup>1</sup> Prof. A.Köhler of Carl Zeiss was the first to apply exact control of the light path in the illuminating beam

<sup>2</sup> Please consider setting up your eyepieces to obtain ‘parfocal’ conditions – see separate sheet

<sup>3</sup> Or substitute one of the eyepieces with a centering telescope, or engage a Bertrand lens

<sup>4</sup> This is only a starting point. The best compromise between contrast and resolution will have to be determined by critically observing the specimen

