

Abbreviated Novex optical microscope manual

1. Adjusting the microscope

The parts of the microscope are indicated in figure 1.

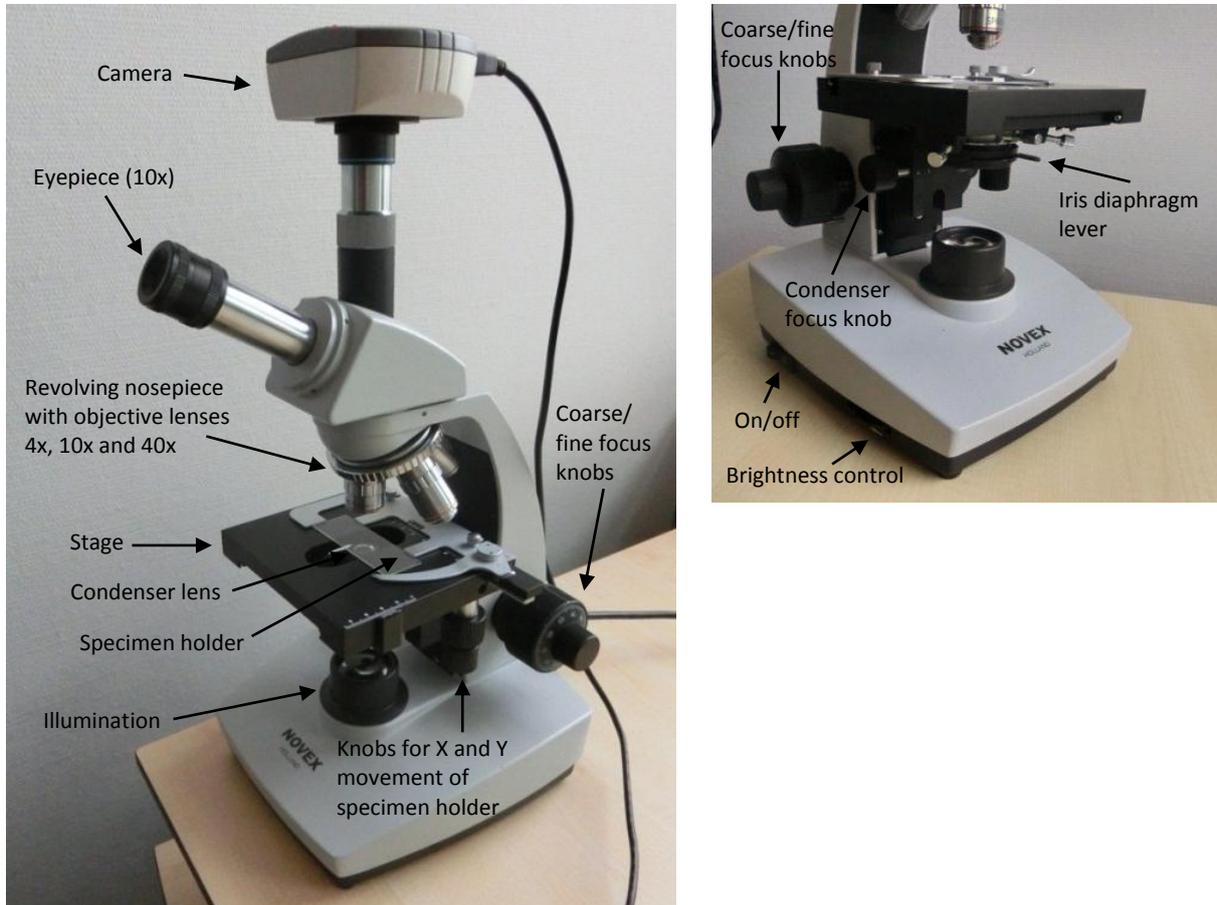


Figure 1: Parts of the microscope

1. The purpose of the condenser is to focus the light from the lamp on the sample. This focusing is not very critical for the quality of the image. Adjust the condenser focus knob so the condenser lens (visible in the opening in the stage) is about 1 cm below the surface of the stage.
2. The purpose of the iris diaphragm is not to adjust the light intensity but to influence the contrast of the image. With the installed objective lenses the iris diaphragm should be maximally closed: lever completely to the right.
3. Place a microscope slide with a sample in the specimen holder. Position the sample above the condenser lens with the knobs for the X and Y movement.
4. Switch on the light of the microscope and set the brightness control to half capacity.
5. To make focussing easier, always start with minimal magnification. This also diminishes the chance that one drives the objective lens in the sample, which could damage the lens. Rotate the nosepiece to position the objective lens with the smallest magnification (4x) above the sample. The total magnification equals the product of the magnifications of the eyepiece and the objective lens.

6. Adjust the focus with the course/fine focus knobs. If necessary adjust the light intensity with the brightness control.
7. For larger magnification, rotate the objective lens with the next higher magnification (first 10x then 40x) above the sample. Make sure the objective lens does not touch the sample while rotating.

The image will only slightly be out of focus, therefore use only the fine focus knob for focusing. Take care not to drive the objective lens in the sample. Adjust the light intensity as needed.

2. Using the CMEX DC1300x microscope camera

The magnification of the eyepiece of the camera is 10x so the total magnification is 10x the magnification of the objective lens.

1. Connect the camera to the USB port of the control computer.
2. Start the ImageFocus software on the control computer.
3. In the Toolbox window click the Capture icon. This will open the Capture window with a live image from the camera.
4. Adjust the settings on the left of the Capture window until a satisfying image is obtained. Exposure time and Gain are the most important settings.
 - The Auto Exposure function is very convenient for a course setting of the Exposure time and Gain. After that, manual fine tuning of these parameters can be done with the Auto Exposure function off.
 - The Auto Exposure function does not work if the light intensity is too high or too low. In that case, adjust the light intensity with the brightness control on the microscope.
 - Too low exposure times will generate "dark lines" in the image. In that case increase the light intensity with the brightness control on the microscope.
5. An image may be captured by clicking the Single Capture button. The captured image may then be:
 - analysed (measurement of distances)
 - annotated
 - saved