

**Monocular Microscope, ME5 1020249**  
**Binocular Microscope, BE5 1020250**  
**Trinocular Microscope, TE5 1020251**

## Instruction Manual

07/16 ALF



### 1. Description, technical data

The microscopes E5 allow two-dimensional viewing of objects (thin sections of plant or animal specimen) in 40x to 1000x magnification.

Besides the binocular eyepiece, the microscope model TE5 also offers the option of connecting a camera for photographic and/or video documentation.



- 1 Eyepiece
- 2 Tube
- 3 Revolving nosepiece with objectives
- 4 Object stage with object guide
- 5 Condenser with iris diaphragm and filter holder
- 6 Illumination
- 7 Mains switch
- 8 Head
- 9 Stand
- 10 x-y Cross-table adjustment
- 11 Retaining lever
- 12 Fine adjustment
- 13 Coarse and fine adjustment

Art. No.	1020249	1020250	1020251
Description	Monocular Microscope ME5	Binocular Microscope BE5	Trinocular Microscope TE5
Stand	Robust, all metal stand with arm permanently connected to the base. Focussing by means of separate knobs for coarse and fine adjustment located on either side of the stand and operated by rack and pinion drive with ball bearings and retaining lever, adjustable stopper for protecting the object slides and objective. Resolution of fine focussing adjustment: 0.002 mm		
Tube	Monocular inclined 30°, head rotation 360°	Monocular inclined 30°, head rotation 360°	Monocular inclined 30°, head rotation 360°
Eyepieces	Wide field plan eyepiece PL 10x 18 mm	Wide field plan eyepiece PL 10x 18 mm	
Objectives	Inverted objective revolver with 4 achromatic objectives 4x / 0.10, 10x / 0.25, 40x / 0.65, 100x / 1.25 (oil)		
Enlargement	40x, 100x, 400x, 1000x		
Object Stage	x-y mechanical stage, 132 mm x 140 mm, with object guide and coaxial adjustment knobs perpendicular to the object stage, adjustment range 76 mm x 50 mm, accuracy 0.1 mm		
Illumination	Adjustable LED lighting integrated in base, universal 100 to 240 V, 50/60 Hz power supply		
Condenser	Abbe condenser N.A.1.25 with iris diaphragm , filter holder and blue filter		
Dimensions	350 mm x 213 mm x 366 mm approx.		
Weight	8 kg approx.		

## 2. Unpacking and assembly

The microscope is packed in a molded styrofoam container.

- Take the container out of the carton remove the tape and carefully lift the top half off the container. Be careful not to let the optical items (objectives and eyepieces) drop down.
- To avoid condensation on the optical components, leave the microscope in the original packing to allow it to adjust to room temperature.
- Using both hands (one around the pillar and one around the base), lift the microscope from the container and put it on a stable desk.
- The objectives will be found within individual protective vials. Install the objectives into the microscope nosepiece from the lowest magnification to the highest, in a clockwise direction from the rear.
- Insert the eyepiece into the tube and secure it in place using the small hex key.
- Secure the head with the large hex key.

## 3. Operation

### 3.1 General information

- Set the microscope on a level table.
- Place the object to be observed in the center of the object plate.
- Connect the mains cable to the net and turn on the switch to get the object illuminated.
- Make certain that the specimen is centered over the opening in the stage.
- Make the necessary eyepiece dioptre adjustments to suit your eyes (refer to 3.2).
- Adjust the interpupillary distance so that one circle of light can be seen (refer to 3.3).
- Adjust the aperture of the iris diaphragm to get the background brightness suitable for a high contrast image.
- Rotate the nosepiece until the objective with the lowest magnification is pointed at the specimen. There is a definite “click” when each objective is lined up properly.

**NOTE:** It is best to begin with the lowest power objective. This is important to reveal general structural details with the largest field of view first. Then you may increase the magnification as needed to reveal small details.

To determine the magnification at which you are viewing a specimen, multiply the power of the eyepiece by the power of the objective.

- Adjust the coarse-focusing-knob which moves the stage up until the specimen is focused. Be careful that the objective does not make contact with the slide at any time. This may cause damage to the objective and/or crack your slide.
- Adjust the fine-focusing-knob to get the image more sharp and more clear.
- Colour filters may be inserted into the filter holder for definition of specimen parts. Swing the filter holder out and insert colour filters.
- Be careful not to spill any liquids on the microscope.
- Do not mishandle or impose unnecessary force on the microscope.
- Do not wipe the optics with your hands.
- Do not attempt to service the microscope yourself.

### 3.2 Dioptre adjustment (BE5 and TE5)

- Look through the right-hand eyepiece with your right eye and focus on the object.
- Then look through the left-hand eyepiece with your left eye. If the image is not well focussed, turn the dioptre adjustment ring (1) until it is (see Fig. 1).

The dioptre adjustment ring (1) is marked with dioptic values of  $\pm 5$ . The value to which the scale marking (2) points corresponds to the dioptic value for the user.

- Set up the same value next time you use the microscope as well.

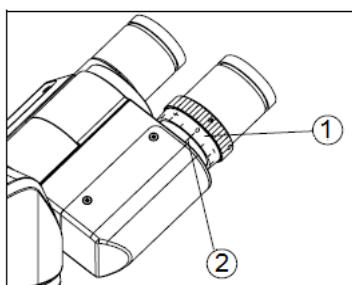


Fig. 1 Dioptre adjustment

### 3.3 Setting of interpupillary distance (BE5 and TE5)

- Look through the eyepieces with both eyes and turn the tubes around the axle until you can see only one image field.

Point (1) indicates the interpupillary distance of the user on the scale (2) (see Fig. 2).

- Set up the same interpupillary distance next time you use the microscope as well.

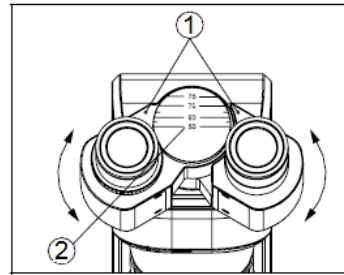


Fig. 2 Adjustment of interpupillary distance

### 3.4 Adjustment of retaining attachment

- You need to adjust the retaining attachment (1) in order to fix the following problems: Difficulty turning the coarse focus adjustment knob, slide slowly losing focus, sliding of object stage (see Fig. 3).

Turning the knob for the retaining attachment in the direction of the arrow secures the retaining attachment. Turning in the opposite direction loosens the focussing drive.

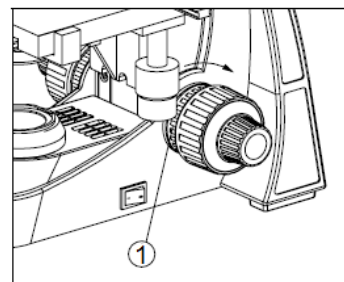


Fig. 3 Retaining attachment adjustment

### 3.5 Changing the lamp

- Turn off the power switch and unplug the mains plug.
- Unscrew the base plate and remove it.
- Unplug the connector to the LED unit by pressing on the connector socket (1) and pulling out the plug (2) (see Fig. 3).
- Undo two screws (3), swap the faulty LED unit for a new one and then screw the microscope back together.

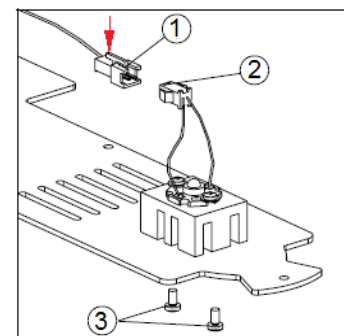
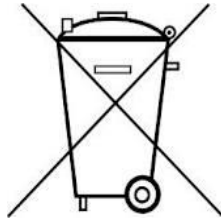


Fig. 3 Changing the lamp

#### 4. Storage, cleaning, disposal

- Keep the microscope in a clean, dry and dust free place.
- When not in use always cover the microscope with the dust cover.
- Do not expose it to temperatures below 5°C and above 40°C and a max. relative humidity of over 80%.
- Always unplug the mains plug before cleaning or maintenance.
- Do not clean the unit with volatile solvents or abrasive cleaners.
- Do not disassemble objective or eyepieces to attempt to clean them.
- Use a soft linen cloth and some ethanol to clean the microscope.
- Use a soft lens tissue to clean the optics.
- Die Verpackung ist bei den örtlichen Recyclingstellen zu entsorgen.

Should you need to dispose of the equipment itself, never throw it away in normal domestic waste. If being used in private households it can be disposed of at the local public waste disposal authority.



- Comply with the applicable regulations for the disposal of electrical equipment.