3B SCIENTIFIC® PHYSICS

Monocular Course Microscope M 100 (115 V, 50/60 Hz) 1005401
Monocular Course Microscope M 100 (230 V, 50/60 Hz) 1005402

Instruction Manual

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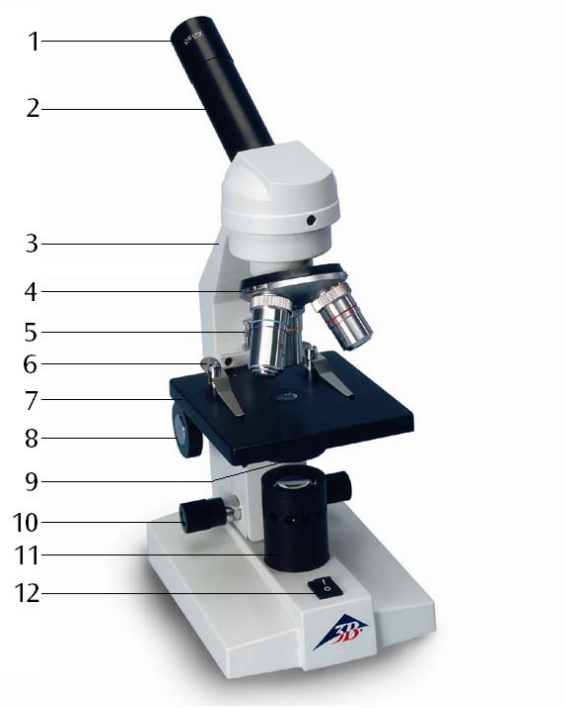

1 Eyepiece
2 Tube
3 Stand
4 Revolver with objectives
5 Lock screw for object stage
6 Specimen clips
7 Object stage
8 Adjustment knob for coarse focusing
9 Condensor with iris diaphragm and filter holder
10 Adjustment knob for fine focusing
11 Lamp housing
12 Mains switch

1. Safety notes

- For power supply use only electrical sockets with ground contact.

Caution! The Stirling engine becomes hot during use. Risk of burns!

- Do not touch the lamp during or immediately after use.

2. Description, technical data

The monocular course microscope allows two-dimensional viewing of objects (thin sections of plant or animal specimen) in 40x to 400x magnification.

The microscope 1005401 is for operation with a mains voltage of 115 V (±10%), and the 1005402 unit is for operation with 230 V (±10%).

Stand: All-metal stand, arm firmly connected with base, pinion knobs attached on both sides of the stand for coarse and fine focusing

Tube: Monocular inclined 45°, head rotation 360°

Eyepiece: Widefield eyepiece WF 10x 18 mm with pointer

Objectives: Revolver with 3 DIN achromatic objectives 4x / 0.10, 10x / 0.25, 40x / 0.65 (with specimen protection)

Magnification: 40x, 100x, 400x

Object stage: 110 x 120 mm^2 with 2 specimen clips

Illumination: 20 W tungsten lamp integrated in base, power supply 1005401: 115 V, 50/60 Hz, 1005402: 230 V, 50/60 Hz

Condenser: Bright-field condenser N.A. 0.65, iris diaphragm, filter holder and blue filter

Dimensions: 175 x 135 x 370 mm^3 approx.

Weight: 2.9 kg approx.

3. 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.

4. Operation

4.1 General information

- Set the microscope on a level table.
- Place the object to be observed in the center of the object plate. Use the clips to fasten it into place. Make certain that the specimen is centered over the opening in the stage.
- 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.
- 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. Than 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.
- Always turn off the light immediately after use.
- 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.

4.2 Changing the lamp and fuse

4.2.1 Changing the lamp

- Turn off the power switch, unplug the mains plug and let the lamp cool down to avoid being burnt.
- Do not touch the bulb with the bare hand.
- To change the lamp screw the lamp-housing off the base.
- Press the bulb into the base and remove it by turning it clockwise.
- Insert the new bulb by lightly pressing it downwards and secure it by turning it counterclockwise.
- Remount the lamp-housing.

4.2.2 Changing the fuse

- Turn off the power switch and unplug the mains plug.
- Unscrew the fuse holder on the back of the stand base with a screwdriver.
- Replace the fuse and reinsert the holder in its socket.

5. 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 0°C and above 40°C and a max. relative humidity of over 85%.
- 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.
- The packaging should be disposed of at local recycling points.
- Should you need to dispose of the equipment itself, never throw it away in normal domestic waste. Local regulations for the disposal of electrical equipment will apply.