OPTIKA

MICROSCOPES

ITALY

Ver. 5.0.0

B-350

OPERATION MANUAL

GUIDA UTENTE

MANUEL D'INSTRUCTIONS

MANUAL DE INSTRUCCIONES

BEDIENUNGSANLEITUNG

OPTIKA MICROSCOPES - ITALY
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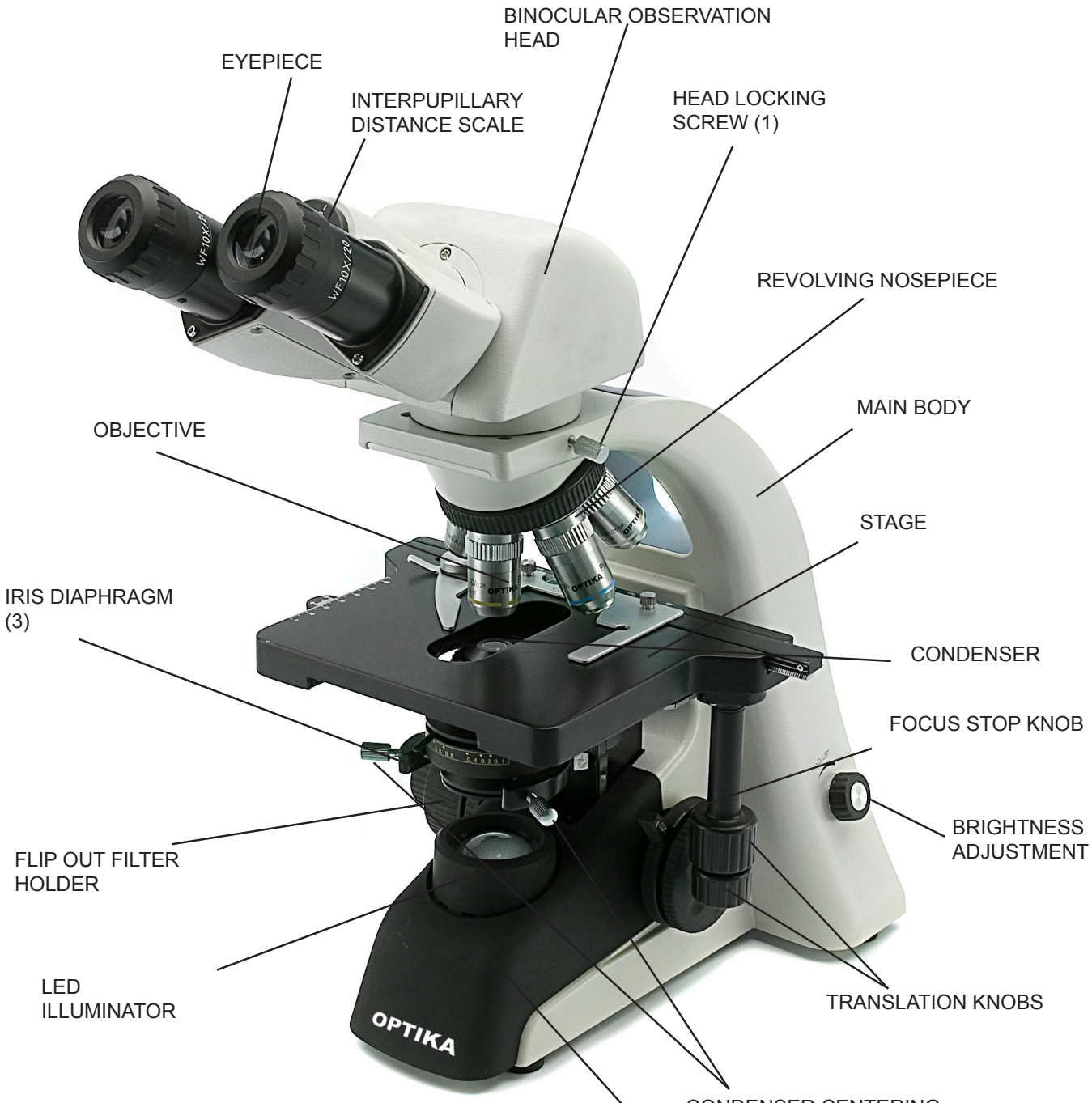

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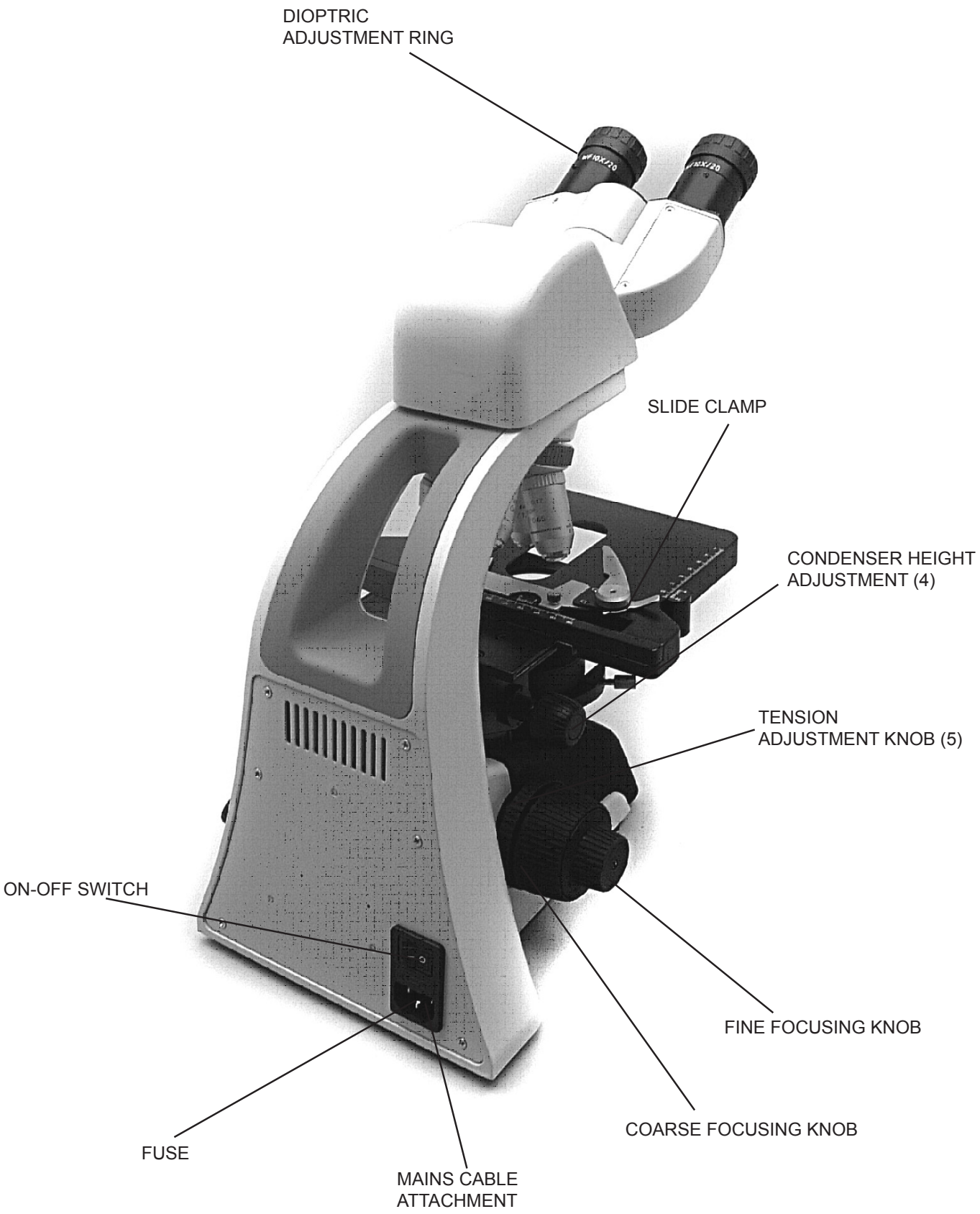
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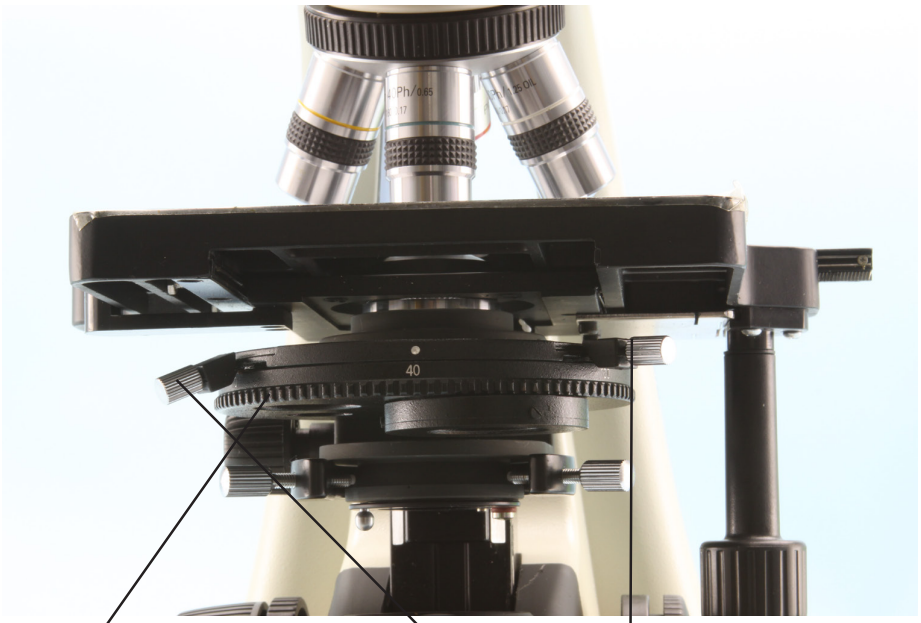
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This microscope is a scientific precision instrument designed to last for many years with a minimum of maintenance. It is built to high optical and mechanical standards and to withstand daily use.
Optika reminds you that this manual contains important information on safety and maintenance, and that it must therefore be made accessible to the instrument users.
Optika declines any responsibility deriving from instrument uses that do not comply with this ma-nual.

2.1 Safety guidelines

This manual contains important information and warnings regarding safety about installation, use and maintenance of the microscope B-350. Please read this manual carefully before using the equipment. To ensure safe use, the user must read and follow all instructions in this manual. OPTIKA products are designed for safe use in normal operating conditions. The equipment and accessories described in the manual are manufactured and tested according to industry standards for safety instrumentation laboratory. Misuse can cause personal injury or damage to the instrument. Keep this manual at hand close to the instrument, for an easy consultation.

2.2 Electrical safety

Before connecting the power cord to wall outlet, ensure that your mains voltage for your region corresponds to the voltage supply of the instrument, and that the illuminator's switch is in position OFF. The user must observe the safety regulations in force in his region. The instrument is equipped with CE safety marking, in any case the user has full responsibility concerning the safe use of that instrument.

2.3 Warning/Caution symbols used in this manual

The user should be aware of safety aspects when using the instrument. Warning or hazard symbols are shown below. These symbols are used in this manual.

The instructions on this symbol to avoid possible severe personal injuries.

Warning of use; the incorrect operation on the instrument can cause damages to the person or instrument.

Possibility of electric shock.

Attention: high temperature surfaces. Avoid direct contact.

Technical notes or usage tips.

The microscope is located in a styrofoam moulded packaging. After removing the adhesive tape from all packaging, lift the top half of the packaging. Pay attention not to drop or damage the optical components (objectives and eyepieces). Extract the microscope from its packaging with both hands (one around the top arm and one around the base) and place it on a stable surface. Keep it away from solvents, chemical vapors and excessive moisture. Avoid high temperature environments, the direct sunshine and excessive vibrations, which could affect the performance of the instrument.

3.1 Operating environment

Temperature: : 10 - 36°C (50 – 96.8°F)
Relative humidity: 0 – 85% up to 30°C (86°F)

3.2 Unpacking microscope

Control the packaging to ensure that all material is present. We recommend that you take note of all the accessories to facilitate any future orders of spare parts and technical support calls. Make sure that in the packaging no small accessories or small parts remain. Please keep the original packaging in a safe place for future transport needs of microscope or accessories.

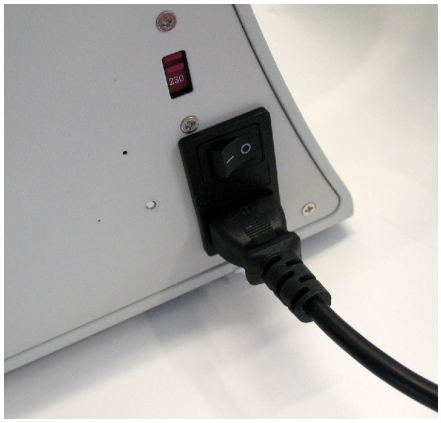
WARNING

Never touch the glass surfaces such as lenses or filters. Traces of grease or other residues can reduce the vision quality of the final image and corrode the surface of lenses in a short time.

3.3 Installing the microscope

Set the optical head on the top arm through the locking screw. Insert the eyepieces into the tubes and lock them with the small screws which are located to the side of the tubes. Remove the protective film from the stage of the microscope.

3.4 Connect the mains plug into the socket at the base



WARNING

Make sure, before you turn the illumination on, that the voltage selector is set to the mains voltage for your region.

230Vac

115Vac

WARNING

The power cord should be used only on network sockets equipped with adequate grounding.

Contact a technician to check the state of your electrical system.
If there is no need to install additional accessories, the instrument is now ready for use.

Once positioned and installed with the necessary components, the microscope is ready to be used. Your microscope is a laboratory instrument designed to last. Handle it always carefully and avoid abrupt vibrations or shocks.
Always disconnect the power cable from the microscope when not in use for long time, while you clean it or when you perform any maintenance.

WARNING

AVOID DISASSEMBLING THE INSTRUMENT
Do not disassemble the instrument. This entails the cancellation of the warranty and may cause malfunction.

4.1 Observation head
Loosen the lock-screw (1), turn the observation head to a comfortable position for observation, and then lock the lock-screw.

4.2 Place the specimen on the stage
Lock the specimen slide on the mechanical stage using the slide clamp. Ensure that the spe¬cimen is centred over the stage opening by adjusting the coaxial knobs of the stage.

4.3 Illumination system settings
The microscope is fitted with a white LED illuminator. Before turning on the illumination system, read the section 5.3 about electrical safety precautions. Insert the plug of the cable into the power socket and turn on the switch on the back of the main body. Turn the brightness adjustment knob to a brightness suitable for observation.

4.4 Adjust interpupillary distance
Hold the right and left parts of the observation head with both hands and adjust the interpupil¬lary distance by turning the two parts until one circle of light can be seen.
The white dot (°) placed on the right eyepiece shows the set interpupillary distance. Just remember this value to help on later settings.

4.5 Focus tension adjustment
The tension of the coarse focusing knob is preset by factory. To change the tension according to your preference, just rotate the knob (5) clockwise in order to increase it.
Excessive tension could damage the mechanism of focus. A too loosed tension causes the descent of the stage by gravity or a sudden loss of focus. In this case, rotate the knob (5) to increase the tension.

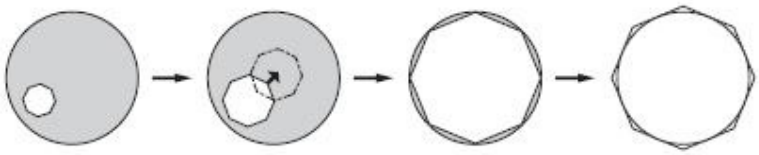
4.6 Diopter adjustment

Turn the dioptric adjustment ring on the right eyepiece dioptric up to align the bottom with the graduated ring. Turn the coarse focus knob in order to focus the slide with an objective with low magnification. Adjust the fine focus knob until you obtain a clear and defined picture observing with the right eye, and then repeat the operation with the left dioptric compensation ring and the left eye. When the image appears in focus, choose the necessary objective with the revolving nosepiece.

4.7 Condenser

Raise or lower the condenser through the knob (4) to obtain a clear and uniform illumination of the sample.

To center the condenser: completely close the iris diaphragm (3). Using the condenser centering screws (2), move the diaphragm in the center of the field of view. Then gradually expand the diaphragm until it is tangent to the edges of the field of view. If necessary, you can perform an additional adjustment. The condenser is centered when the edges of iris diaphragm are tangent to the field of view.



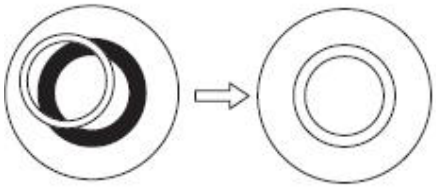
4.8 Numerical aperture setting

The value of the numerical aperture (N.A.) of the diaphragm is an indication of the contrast of the illumination system. Matching the value of illumination system's N.A. with that of the objective ensures the best results in terms of contrast and image quality. To set the numerical aperture of the Illuminator, adjust the opening of the iris diaphragm (3). In this way you control contrast and image resolution. For samples with low contrast set the iris to about 75% of the value of the objective's numerical aperture.

4.9 Phase rings centering (models B-352Ph and B353Ph)

For models equipped with phase contrast set, you have to perform the centering of the phase rings. Remove an eyepiece from the head and insert the centering telescope in the empty tube.

Insert the 10x objective rotating the nosepiece.
Rotate the turret of the condenser (6) until you reach the inscription “10”.
Loosening the lock screw of the centering telescope, focus on the light ring that you observe.
Loosen the locking screws of the phase rings centering levers (7) and slide them forward or backward until the bright light ring is perfectly aligned with the dark ring.
Repeat for the other objectives (only as a verification of the correct centering).
Once centered with 100x objective, the condenser will be automatically centered also with the other objectives.
Phase rings will be centered when you see an image like this:



4.10 Additional filters

The blue, yellow and frosted glass filters can be inserted in the flip-out filter holder underneath the condenser.

5.1 Microscopy environment

This microscope is recommended to be used in a clean, dry and shock free environment with a temperature of 0-40°C and a maximum relative humidity of 85 % (non condensing). Use a dehumidifier if needed.

5.2 Before and after using the microscope

- The microscope should always be kept vertically when moving it and be careful so that no moving parts, such as the eyepieces, fall out.
- Never mishandle or impose unnecessary force on the microscope.
- Never attempt to service the microscope yourself.
- After use, turn off the light immediately, cover the microscope with the included dust-cover, and keep it in a dry and clean place.

5.3 Precautions for a safe use

- Before plugging in the power cord with the supply, make sure that the supplying voltage of your region matches with the operation voltage of the equipment and that the lamp switch is in off-position.
- Do not turn the power on and off, off and on immediately as this will shorten the life span of the bulb and may cause damage to the electrical system.
- Users should observe all safety regulations of the region. The equipment has acquired the CE safety label. However, users do have full responsibility to use this equipment safely.

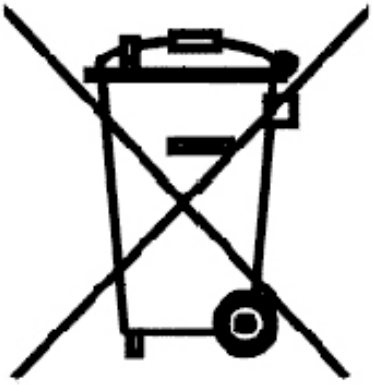
5.4 Cleaning the optics

- If the optical parts need to be cleaned try first to: use compressed air.
- If that is not sufficient: use a soft lint-free piece of cloth with water and a mild detergent.
- And as a final option: use the piece of cloth moistened with a 3:7 mixture of ethanol and ether.
  Note: ethanol and ether are highly flammable liquids. Do not use them near a heat source, near sparks or near electric equipment. Use these chemicals in a well ventilated room.
- Remember to never wipe the surface of any optical items with your hands. Fingerprints can damage the optics.
- Do not disassemble objectives or eyepieces in attempt to clean them.

If you need to send the microscope to Optika for maintenance, please use the original packaging.

Description:	Teaching and routine laboratory microscope. Die-cast metal stand, with great stability and ergonomics, intended for transmitted light observation.
Illumination:	Light source: X-LED type with white LED; brightness adjustment through a potentiometer placed in the bottom right side of the stand. LED power 3W, comparable to 30-35W halogen lamp. Average LED lifetime about 50.000 hours. The collecting lens of the illuminator can accommodate additional filters (blue, yellow, frosted). Input voltage: 110/230Vac, 50/60Hz, 0,4/0,8A; Fuse: F2A 250V Maximum power: 7W
Observation modes:	Brightfield, darkfield, phase contrast, fluorescence
Focus:	Coaxial coarse and fine (graduated, 0.002mm) focusing system, with focusing stop mechanism (to prevent the objective from hitting the slide). Focus knobs tension is adjustable.
Stage:	Double layer with mechanical sliding stage, dimensions 160x142mm, mo¬ving range76x52mm. With sample holder for two slides. Vernier scale with 0.1mm precision on both translation axis.
Nosepiece:	Revolving nosepiece with 4 or 5 positions, with ball-bearing movement.
Head:	Binocular or trinocular, 30° inclined and 360° rotating. Diopter adjustment on both eyepieces. Interpupillary adjustment range: 55-75 mm.
Eyepieces:	Wide field eyepieces with 20mm field number.
Objectives:	Achromatic set (160mm tube length): -) 4X/0.10, 10X/0.25, 40X/0.65, 100X/1.25 (oil immersion) PlanAchromatic set (160mm tube length): -) 4X/0.10, 10X/0.25, 40X/0.65, 100X/1.25 (oil immersion) E-PlanAchromatic IOS set (infinity-corrected, 45mm parfocal distance): -) 4X/0.10, 10X/0.25, 40X/0.65, 100X/1.25 (oil immersion) PlanAchromatic Phase Contrast set (160mm tube length): -) 4X/0.10, 10X/0.25Ph, 40X/0.65Ph, 100X/1.25Ph (oil immersion) E-PlanAchromatic IOS Phase Contrast set (infinity-corrected, 45mm parfocal distance): -) 10X/0.25Ph, 20X,0.40Ph, 40X/0.65, 100X/1.25Ph (oil immersion) PlanAchromatic Darkfield set (160mm tube length): -) 4X/0.10, 10X/0.25, 40X/0.65, 100X/1.25 with iris (oil immersion) All optics treated with anti-fungus system.
Condenser:	Abbe condenser, N.A. 1,25 with centering system. Phase contrast condenser (for 10X, 40X, 100X objectives), brightfield and darkfield. Phase contrast condenser (for 10X, 20X, 40X, 100X objectives) and brightfield. Darkfield condenser for oil immersion, N.A. 1,36 with built-in X-LED.
Dimensions:	HEIGHT: 445 mm (without attachment) / 520 mm (with attachment). WIDTH: 205 mm DEPTH: 375 mm WEIGHT: 4 Kg
Accessories:	User manual and dust cover included.

Art.13 Dlsg 25 july 2005 N°151. “According to directives 2002/95/EC, 2002/96/EC and 2003/108/EC relating to the reduction in the use of hazardous substances in electrical and electronic equipment and waste disposal.”



The basket symbol on equipment or on its box indicates that the product at the end of its useful life should be collected separately from other waste.

The separate collection of this equipment at the end of its lifetime is organized and managed by the producer. The user will have to contact the manufacturer and follow the rules that he adopted for end-of-life equipment collection. The collection of the equipment for recycling, treatment and environmentally compatible disposal, helps to prevent possible adverse effects on the environment and health and promotes reuse and/or recycling of materials of the equipment. Improper disposal of the product involves the application of administrative penalties as provided by the laws in force.