



# GIMA

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مجهر

**MANUALE D'USO E MANUTENZIONE  
USE AND MAINTENANCE BOOK  
INSTRUCTIONS DE FONCTIONNEMENT ET ENTRETIEN  
BETRIEBS UND WARTUNGS ANWEISUNGEN  
MANUAL DE USO Y MANTENIMIENTO  
MANUAL DE USO E MANUTENÇÃO  
ΕΓΧΕΙΡΙΔΙΟ ΧΡΗΣΗΣ ΚΑΙ ΣΥΝΤΗΡΗΣΗΣ  
دليل الإستعمال والرعاية**

**ATTENZIONE:** Gli operatori devono leggere e capire completamente questo manuale prima di utilizzare il prodotto.

**ATTENTION:** The operators must carefully read and completely understand the present manual before using the product.

**AVIS:** Les opérateurs doivent lire et bien comprendre ce manuel avant d'utiliser le produit.

**ACHTUNG:** Die Bediener müssen vorher dieses Handbuch gelesen und verstanden haben, bevor sie das Produkt benutzen.

**ATENCIÓN:** Los operadores tienen que leer y entender completamente este manual antes de utilizar el producto.

**ATENÇÃO:** Os operadores devem ler e entender completamente este manual antes de usar o produto.

**ΠΡΟΣΟΧΗ:** Οι χειριστές αυτού του προϊόντος πρέπει να διαβάσουν και να καταλάβουν πλήρως τις οδηγίες του εγχειριδίου πριν από την χρήση του.

**الحذر:** على العمال قراءة وفهم هذا الدليل بكامله قبل البدء باستخدام المنتج.



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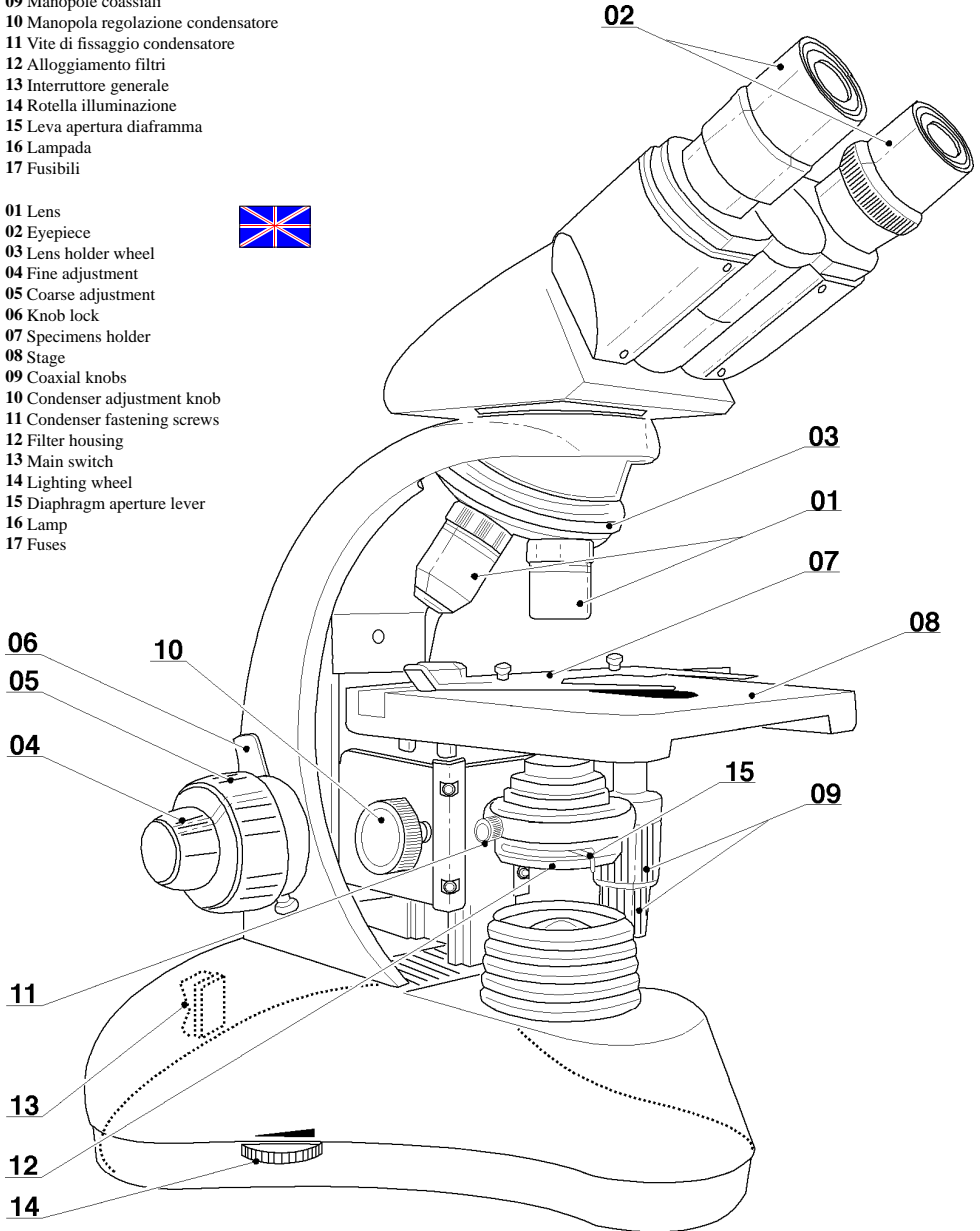
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## FEATURES

Microscopes GIMA are laboratory equipment supporting the scientific research, for medical use and for didactic use in the schools.

### TECHNICAL SPECIFICATIONS

#### 1. Eyepiece lenses

Type	Magnification
Widefield	10X
Plan	16X

#### 2. Objective lenses

Type	Magnification	N.A.
Achromatic or Semi-plan Achromatic	4X	0.1
	10X	0.25
	40X	0.65
	100X (oil)	1.25

#### 3. Total magnification

Objective lenses	4X	10X	40X	100X
<b>Eyepiece lenses 10X</b>	40X	100X	400X	1000X
<b>Eyepiece lenses 16X</b>	64X	160X	640X	1600X

- Condenser numerical opening:  $NA=1.25$ ;
- Plate moving field: longitudinal 35 mm, transversal 75 mm;
- Knob for fine focus: min. increment 0,002 mm;
- Interpupiliary adjustment radius: 53-75 mm;
- Light source: Halogen lamp with variable intensity from 6V 20W;
- Power supply: AC 220V 50 Hz or AC 110V 60 Hz;
- Fungus-resistant

The product, or parts of it, cannot be used for uses different from the one specified in the present manual.



## PRESCRIPTIONS

If you move the microscope from a cold to a warm environment, or vice versa, let the instrument acclimate for about half an hour before using it to avoid the formation of condensate.



*Do not use the equipment in case it is damaged. Apply to your retailer. Avoid precarious repairs. Repairs shall be carried out with original spare parts only, which shall be installed according to the intended use.*

Since the product is made of corrosion-proof materials suitable for the environmental conditions foreseen for its normal use, does not require special care, however it is necessary to store it in a closed place making sure that is protected from dust and dirt to assure its hygienic conditions. Moreover, it is recommended to store the product in a place which can be reached easily by the personnel in case of necessity.

## UNPACKING



*Always remember that packing elements (paper, cellophane, stitches, adhesive tape, etc.) can cut and/or hurt if they are not carefully handled. They shall be removed with adequate means and shall not be left at the mercy of irresponsible persons; the same is valid for tools used to remove packages (scissors, knives, etc.).*

After opening the packages, first of all it is necessary to check all pieces and parts composing the product. Check that they are all present and in perfect conditions.

## INSTALLATION

After removing the microscope from its box, position the binocular on the microscope:

- Remove the screw on the right side of the upper part of the stand where the binocular housing is positioned using the supplied setscrew wrench.
- put the lower part of the binocular in the housing on the upper part of the stand.
- screw the fastening screw back on.
- Screw three lenses **01** onto the lens holder wheel **03**.
- Insert the eyepieces **02** into the specific slots on the binocular.

Disassemble the binocular, the lenses and the eyepieces every time you need to put away the product.



*The eyepieces are not fixed into their slots in the binocular. Remove the eyepieces before tilting or turning over the microscope.*

## OPERATION

### OBSERVATION

- 1.** Plug the power cable in the outlet on the back of the microscope and connect it to the power outlet. Set the main switch on the back of the microscope to "I" to switch on the device;
  - 2.** Put one of the lenses in operating position by rotating the lens holder wheel **03**, then focus the specimen that is on the stage;
  - 3.** Adjust the inter-pupillary distance and the diopter of the binocular;
  - 4.** Adjust the height of the condenser, the brightness and the aperture of the diaphragm until there is enough light. When lenses 4X or 10X are used, lower the property of the condenser to obtain a symmetrical lighting;
  - 5.** To change the lenses, rotate the lens holder wheel and slightly focus with the fine adjustment knob
- 04.** When using lens 100X, put a drop of cedar oil between the lens and the specimen.



*While turning the nosepiece, pay attention that the specimen does not hit the objectives!  
The lenses and the specimen can be damaged!*

## ADJUSTMENT

### 1. Interpupillary adjustment

Place the specimen on the plate and precisely focus it. Adjust the interpupillary distance until the two views on the right and the left become one.

### 2. Adjusting the diopter

Position the specimen on the stage. Move the lens in operating position. First look with left eye in left eyepiece and focus with knobs until the image is clear. The look with right eye in right eyepiece and adjust until image is clear.

### 3. Coarse and fine adjustment

The instrument uses a coaxial focusing mechanism. The tension ring on the right of the microscope near the focusing knob is used to adjust the tension of the coarse adjustment knob **05** to prevent the table to drop due to gravity. Use the supplied lever wrench to adjust. The knob lock **06** is used to prevent the specimen and the lens from touching. The outer knobs are used for fine adjustment operations **04**.



*During focusing operations make sure the specimen never touches the lens!*

### 4. Tray

The practical specimen holder **07** above the stage **08** is used to fix the slides, the coaxial knobs **09** are used to move the stage on the horizontal surface.

### 5. Mobile condenser

The condenser can be lifted or lowered by rotating the condenser adjustment knob **10**. The condenser can be easily removed by removing the condenser fastening screws **11**. The filters can be fixed in the filter housing **12** under the condenser's diaphragm.

### 6. Main switch and brightness adjustment

Switch on the main switch **13**, regulate illumination using the appropriate wheel **14** so as to give the clearest possible image.



*Do not leave the speed wheel at maximum setting too long. This will reduce the technical life of the lamp.*

### 7. Adjusting diaphragm field

Switch on the device, position the sample on the stage, set lens in operating position, look through eyepieces. Rotate the knob to adjust the height of the condenser to obtain the image of the diaphragm field.

### 8. Diaphragm aperture

The diaphragm aperture lever **15** can be rotated to adjust the numerical aperture of the lighting system. By adjusting the aperture of the diaphragm you can obtain an image with a good contrast. Usually by adjusting the aperture diameter of the image of the diaphragm at 70-80% of the lens you can reach a good result. As a general rule, a large aperture means the image has a higher resolution and brightness, a small aperture means the depth of field and the contrast are bigger.

## MAINTENANCE

The microscope GIMA is a precision optical instrument and must be handled with great care:

- Place the microscope in dry and clean environment, avoiding sudden changes in temperature.
- When the microscope is not used, always protect it with a dust-proof cover. If you think you do not use it for a long time, replace it into the apposite case supplied with the microscope. For the best



preservation of the objective lens and eyepieces, it is advisable to use dehumidification agents.

- In case you need to move the microscope, hold it by the holder column. Do not seize it by the eyepiece or objective lenses.



*Before cleaning the microscope, unplug it from power supply!*

*Never clean the optical surfaces with paper tissues and cloths!*

*Do not use pure alcohol to clean optical components!*

*Do not dismantle and never clean the internal surfaces of the microscope optical components!*

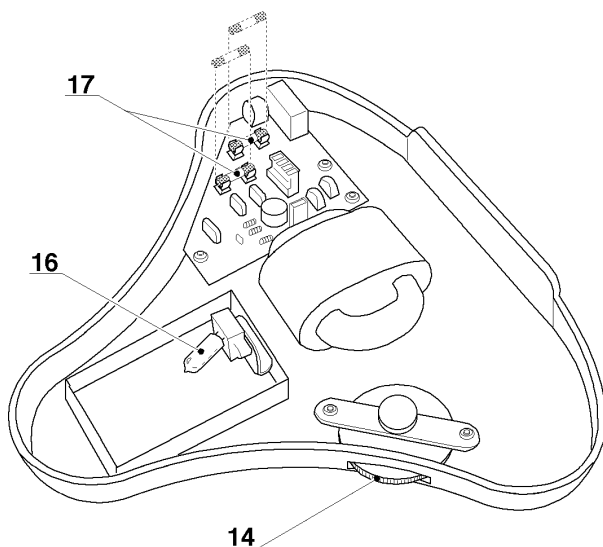
*Remove the oil from the 100X lens after each employment!*

The microscope metallic parts can be cleaned with a slightly wet cloth.

The optical components (objective lenses, eyepieces, condenser) must be daily cleaned as follows: blow away the dust by means of a little pump or compressed air bomb. Alternatively it is possible to remove the dust with a clean brush with non-abrasive bristles.

To thoroughly clean the optical components (objective lenses, eyepieces, condenser) and to remove the oil from the 100X objective, make use of a wad of cotton-wool soaked with a alcohol/ether solution or diethyl benzene.

## REPLACING THE LAMP



1. Switch off the microscope and disconnect the power cable.

2. Remove the eyepieces and put them back in the box.

3. Tilt the microscope, remove the screw of the door in the front part of the base of the microscope and open to reach the lamp **16**.

3. Remove the old lamp

4. Put in the new lamp and make sure it is positioned correctly.

5. Clean the new lamp with alcohol.

6. Close the door and fix it with a screw.

7. Connect the power cable, switch on the microscope, position the lenses, adjust the height of the condenser and make sure light reaches the field of focus.

## REPLACING THE FUSES

1. Remove the screws under the five feet of the base of the microscope and remove the base from the column making sure not to tear the earth wire which connects the two parts.

2. Verify which of the two fuses **17** on the base is burned and remove it. Replace it with a new one.

3. Reposition the base and put the five screws back on.

Specifications of fuse: 250 mA - 250 V



*Only use fuses compliant with the specifications! Different values could damage the product!*

### 110V POWER ADJUSTMENT



*Before carrying out any operation, disconnect the appliance from the mains. If you have doubts on the actual network voltage do not perform adjustments! A wrong voltage setting can cause device failure and risk of fire or electric shock!*

The microscope supplied is set by default to the 220V mains power supply.

There is a switch on the base of the microscope to adjust the voltage supply to 110V.

To make the adjustment, move the switch shown in the picture using a flat-blade screwdriver.



*If you then need to use the microscope with 220V voltage, remember to move back the switch before connecting the device to the mains!*

*Per effettuare la regolazione, spostare l'interruttore indicato in figura con l'ausilio di un cacciavite piatto.*







**Disposal:** *The product must not be disposed of along with other domestic waste. The users must dispose of this equipment by bringing it to a specific recycling point for electric and electronic equipment.*

*For further information on recycling points contact the local authorities, the local recycling center or the shop where the product was purchased. If the equipment is not disposed of correctly, fines or penalties may be applied in accordance with the national legislation and regulations.*

## GIMA WARRANTY CONDITIONS

Congratulations for purchasing a GIMA product.

This product meets high qualitative standards both as regards the material and the production. The warranty is valid for 12 months from the date of supply of GIMA.

During the period of validity of the warranty, GIMA will repair and/or replace free of charge all the defected parts due to production reasons. Labor costs and personnel traveling expenses and packaging not included.

All components subject to wear are not included in the warranty.

The repair or replacement performed during the warranty period shall not extend the warranty.

The warranty is void in the following cases: repairs performed by unauthorized personnel or with non-original spare parts, defects caused by negligence or incorrect use.

GIMA cannot be held responsible for malfunctioning on electronic devices or software due to outside agents such as: voltage changes, electro-magnetic fields, radio interferences, etc.

The warranty is void if the above regulations are not observed and if the serial code (if available) has been removed, cancelled or changed.

The defected products must be returned only to the dealer the product was purchased from. Products sent to GIMA will be rejected. La garanzia decade se non viene rispettato quanto sopra e se il numero di matricola (se presente) risulti asportato, cancellato o alterato. I prodotti ritenuti difettosi devono essere resi solo e soltanto al rivenditore presso il quale è avvenuto l'acquisto. Spedizioni inviate direttamente a GIMA verranno respinte.