INSTRUCTION MANUAL
EUROMEX
MICROSCOPES
OF THE MICROBLUE RANGE

EUROMEX Microscopen B.V.
HOLLAND

www.euromex.com

1.0 Introduction

With your purchase of an EUROMEX MicroBlue type microscope you have chosen for a quality product. The EUROMEX MicroBlue type microscopes are developed for use at home and at schools.

The maintenance requirement is limited when using the microscope in a decent manner.

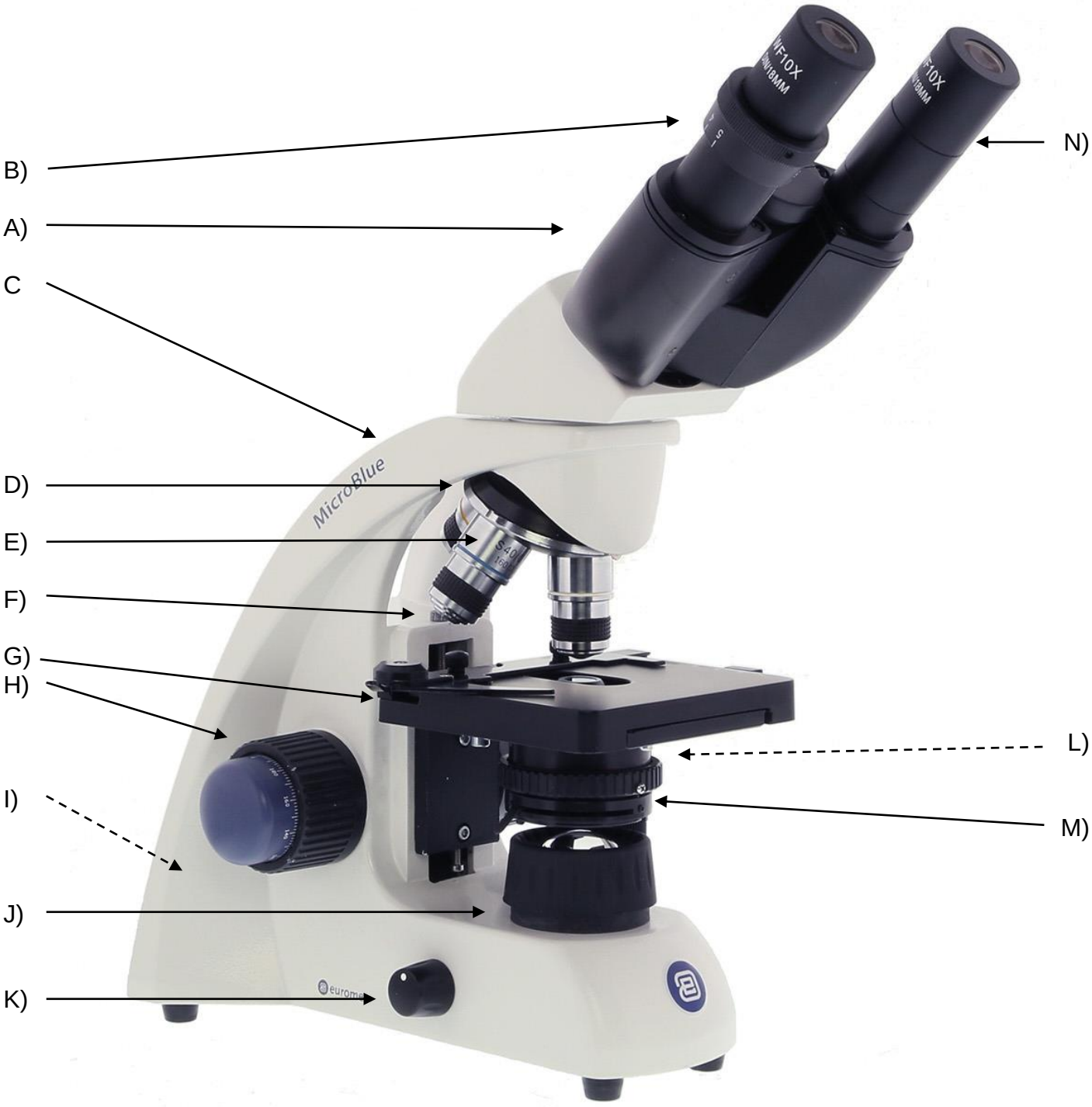
This manual describes the construction of the microscope, how to use the microscope and maintenance of the microscope.

2.0 Index

3.0 Construction of the microscope

The names of the several parts are listed below and are indicated in the picture of the MB.1152:

A) Tube (mono/bino 360° rotatable)
B) Dioptric adjustment (bino type only)
C) Stand arm
D) Revolving nosepiece for 4 objectives
E) Objectives
F) Safety device
G) Object stage (mechanical stage or clips)
H) Coaxial coarse and fine adjustment
I) On/Off switch & power connector (not visible)
J) Lamp housing
K) Light intensity control
L) Coaxial stage controls
M) Condenser with iris diaphragm + filter holder
N) Eyepiece(s)



MB.1152

4.0 Functions of the microscope

The stand consists of a stand arm (C), stand base and an object stage (G).

Hold the microscope at the top of the stand arm when it should be moved.

4.1 Tube

The 360° rotatable tube (either monocular or binocular) is equipped with WF10x eyepiece(s) (N). The mono tube versions equipped with a WF10x eyepiece which can be rotated and is locked with a screw. Please remove the screw before taking out the eye piece to prevent damage.

4.2 Revolving nosepiece

The revolving nosepiece (D) can be equipped with 4 objectives (E).

4.3 Optical specifications of the MicroBlue range

The EUROMEX MicroBlue range microscopes are standard equipped with 1 or 2 widefield eyepieces WF10x (N) and Achromatic-objectives, as mentioned below in table 1.

Models	Mono	Bino	Maximum objectives	4/10/S40x objectives	S60x objective	S100x objective	Mechanical X-Y stage	1W LED	NeoLED
MB.1001	•		3	•				•	
MB.1652		•	4	•	•		•		•
MB.1152		•	4	•		•	•		•

Table 1

The S40x, S60x and S100x objectives are equipped with a spring mount, to prevent damage to the frontlens and the slide.

The total magnification can be calculated by multiplying the magnification of the eyepiece with the magnification of the objective. The magnifications are displayed in the table below:

Eyepiece	Objective	Magnification
10x	4x	40x
10x	10x	100x
10x	40x	400x
10x	60x	600x
10x	100x	1000x

4.4 Object stage

On the MB.1001 the slide is placed beneath the object clips. On the other models the slide is to be placed into the clamp of the mechanical stage (G) and can be carefully moved into X- and Y-directions. Focusing the specimen is done by using the coaxial coarse- and fine adjustment knobs (H).

4.5 Coarse- and fine adjustment

The coarse- and fine adjustment knobs (H) for the height adjustment of the object stage are mounted together on one (1) axis (co-axial). On both fine adjustment knobs there is a graduation with intervals of 0.002 mm. This can be used to measure depths in a specimen.

4.6 Abbe condenser with iris diaphragm

Beneath the object stage of the MB.1152 and MB.1652 an Abbe condenser (M) N.A. 125 is mounted, model MB.1001 has a fixed condenser (M) N.A. 0.65. The Abbe condenser can be adjusted in height by means of turning. With this one can focus the light on the specimen by which the contrast can be optimised. All condensers are factory pre-centered.

The iris diaphragm with filter holder is mounted beneath the condenser. The light intensity can be adjusted by changing the flexible opening.

4.7 Illumination EUROMEX MicroBlue serie

The LED illumination of the MicroBlue is equipped with rechargeable batteries.
The length of use after charging is about 60 hours. The full charging time is about 10 hours. At first use the batteries have to be fully charged. Connect the external power supply unit to the power inlet socket.

The illumination has the following specifications:

- LED/NeoLED : 1W, 300 mA.
- External Charger : Primary AC 85 - 265 Volt-50Hz.
- Batteries : 3 NiMh, AA type, 1.2 Volt 1600 - 2000 mA.

5.0 Preparing the microscope for use

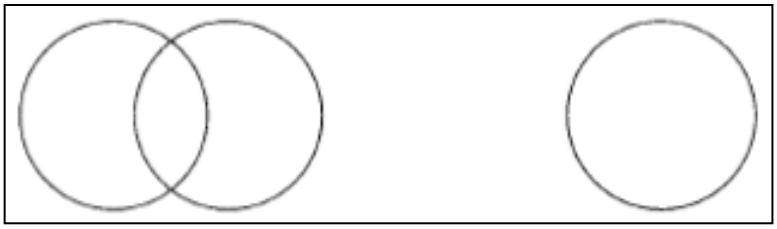
Remove the packing and put the microscope on a flat table. The objectives are pre-mounted.
Put the plug into the mains supply and switch on the microscope. Sit down comfortably behind the microscope and take a relaxed position while viewing through the eyepieces (N).

6.0 Working with the microscope

Please read the following instructions to achieve the best microscope observing results.

6.1 Setting the interpupillary and diopter distance (binocular type)

Using a binocular tube is less tiring for the eyes than the use of a monocular tube. In order to obtain a smooth “compound” image as well as the right interpupillary setting, one should go through the below steps.



Field of view before adjustment

Field of view after adjustment

- Set the right interpupillary distance by moving the eyepieces towards or away from each other until a compound field of view is achieved (see drawing above).
- Close the left side eye and focus looking through the right side eye with the coarse and fine adjustment knobs (I).
- Now close the right side eye and focus the left side tube by means of the dioptric adjustment ring (B).

This procedure should be followed by each individual user.

6.2 Setting the illumination

For optimum effect in contrast and resolution one should follow the below procedure:

Place a specimen on the object stage and focus using the 4x objective, with a fully iris diaphragm.

- Turn the condenser in the highest position (only for MB.1152).
- Close the iris diaphragm, until it is just visible on the edge of the field of view.

The microscope is properly set for use with the 4x objective. For every other magnification this procedure should be repeated to ensure the best balance between contrast and resolution.

When changing slides always start with the 4x objective again.

Caution:
The maximum light intensity when using the 4x and 10x can damage the eyes!

6.3 Safety device

To prevent damage to the objective lens, or breaking the slide, all types are equipped with a pre-fixed safety device.

It is recommended to use slides of 1.0 – 1.2 mm thickness (product numbers: PB.5150, PB.5155, PB.5160) in combination with cover glasses of 0.13 mm or 0.17 mm thickness (product numbers: PB.5165, PB.5168).

6.4 Use of the S100x oil-immersion objective

The MB.1152 microscope is equipped with a S100x N.A. 1.25 oil immersion objective. Please follow these instructions for using this objective:

- Focus the image with the S40x objective.
- Turn the revolving nosepiece so the S100x objective almost reaches the click-stop.
- Put a small drop of immersion oil on the centre of the slide.
- Now turn the S100x objective so that you feel the click stop.
- The front lens is in contact with the immersion oil.
- Look through the eyepiece (N) and focus the image with the fine adjustment knobs (H).

- The distance between the lens of the objective and the slide is only 0.14 mm!
- In case there are small bubbles visible turn the S100x objective a couple of times left/right so that the front of the objective moves in the oil and the bubbles will disappear.
- After using the S100x objective turn the table (G) with the fine adjustment knobs (I) downwards until the front lens doesn't touch the oil any longer.
- Always clean the front lens of the S100x objective with a piece of lens paper that is moistened with a drop of xylol or alcohol.
- Clean the slide after use as well.

The S100x can also be used without immersion oil (dry). Please be aware of the fact that in such case the resolution will be much lower!

Caution

- Never put a drop of xylol or alcohol directly on the lens of the objective. It could enter the objective and dissolve the glue that holds the lenses!
- Avoid oil contact with any of the other objectives!

7.0 Maintenance and cleaning

Always place the dustcover over the microscope after use. Keep the eyepiece and objectives always mounted on the microscope to avoid dust entering the instrument.

7.1 Cleaning the optics

When the eyepiece lens or front lens of the 10x or S40x objective are dirty they can be cleaned by wiping a piece of lens paper over the surface (circular movements). When this does not help put a drop of xylol or alcohol on the lens paper. Never put xylol or alcohol directly on the lens!

When dirt is clearly visible in the field of view it resides on the lowest lens of the eyepiece. By using the Allen-key the eyepiece can be removed from the tube. Clean the outside of the lens. In case there is still dust visible please check if the dust is in the eyepiece by turning it. If this is the case remove the lowest lens carefully from the eyepiece and clean it.

It is not necessary – and not recommended – to clean the lens surfaces at the inner side of the objectives. Sometimes dust can be removed with high pressured air. There will never be dust in the objectives if the objectives are not removed from the revolving nosepiece.

Caution

- Cleaning cloths containing plastic fibres can damage the coating of the lenses!

7.2 Maintenance of the stand

Dust can be removed with a brush. In case the stand or table is really dirty the surface can be cleaned with a non-aggressive cleaning product.
All moving parts like the height adjustment or the coaxial course and fine adjustment contain ball bearings that are not dust sensitive. With a drop of sewing-machine oil the bearing can be lubricated.

7.3 Changing the batteries of the MicroBlue

Caution: Always remove the power cable from the mains supply !

- Remove the smal lid out of the bottom cover of the microscope.
- Place the batteries and put the lid back into its place.

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