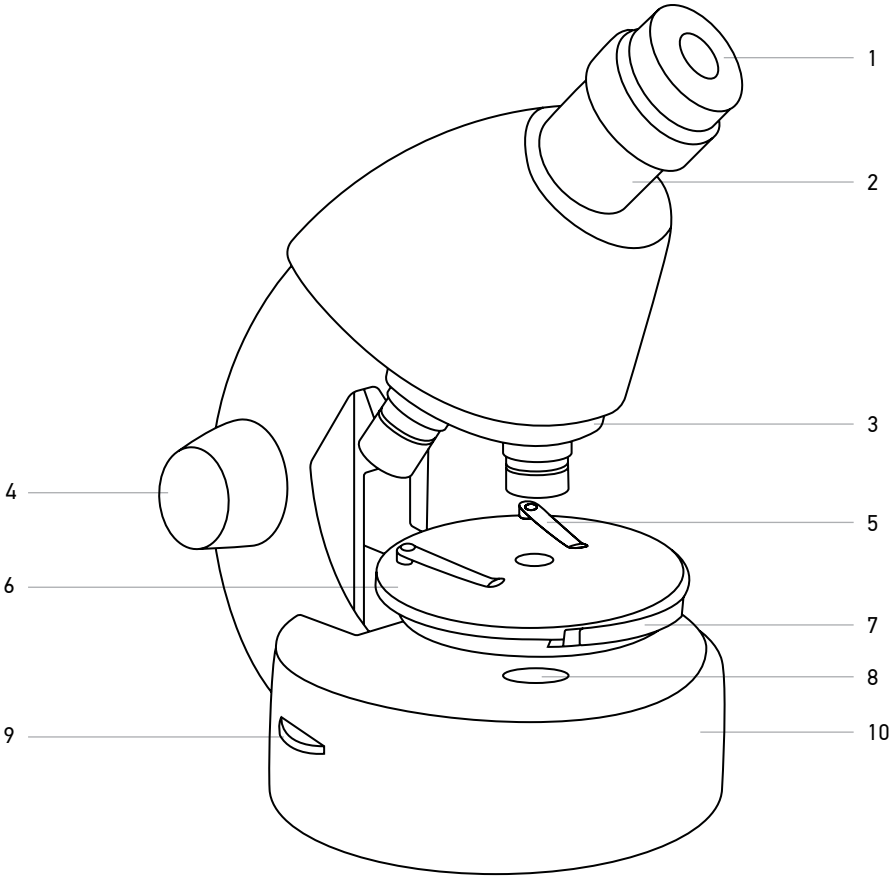
Discovery Micro Microscopes

- (EN) User Manual
- (BG) Ръководство за потребителя
- (CZ) Návod k použití
- (DE) Bedienungsanleitung
- (ES) Guía del usuario
- (HU) Használati útmutató
- (IT) Guida all'utilizzo
- (PL) Instrukcja obsługi
- (PT) Manual do usuário
- (RU) Инструкция по эксплуатации
- (TR) Kullanım kılavuzu

Discovery



EN

1 Eyepiece
2 Monocular head (eyepiece tube)
3 Revolving nosepiece with objectives
4 Focusing knob
5 Specimen holders
6 Stage
7 Diaphragm disk
8 Lower illumination
9 Lower illumination switch
10 Base

BG

1 Окуляр
2 Монокулярна глава (тръба на окуляра)
3 Револверна глава с обективи
4 Бутон за фокусиране
5 Държач за образци
6 Предметна маса
7 Дискова диафрагма
8 Долно осветление
9 Прекъсвач за долно осветление
10 Основа

CZ

1 Okulár
2 Monokulární hlava (tubus okuláru)
3 Otočná hlavice
4 Šroub ostření
5 Svorky
6 Pracovní stolek
7 Kotoučová clona
8 Spodní osvětlení
9 Spínač spodního osvětlení
10 Stativ

DE

1 Okular
2 Monokularkopf (Okularrohr)
3 Objektivrevolver
4 Fokussierknopf
5 Präparatklemmen
6 Objekttisch
7 Blendenrad
8 Untere Beleuchtungsquelle
9 Untere Beleuchtungsschalter
10 Sockel

(ES)

1 Ocular
2 Cabezal monocular (tubo ocular)
3 Revólver giratorio
4 Mando de ajuste del enfoque
5 Pinzas para portaobjetos
6 Platina
7 Diafragma de disco
8 Iluminación inferior
9 Interruptor de la iluminación inferior
10 Base

(HU)

1 Szemlencse
2 Egyszemes fejrész (szemlencsecső)
3 Revolverfej, objektívlencsékkel
4 Fókuszállító gomb
5 Minta tartó
6 Tárgyasztal
7 Diafragma lemez
8 Alsó megvilágítás
9 Az alsó megvilágítás kapcsolója
10 Talpazat

(IT)

1 Oculare
2 Testa monoculare (tubo oculare)
3 Revolver con obiettivi
4 Manopola di messa a fuoco
5 Supporti portacampione
6 Tavolino portacampione
7 Diaframma a disco
8 Illuminazione inferiore
9 Interruttore illuminazione inferiore
10 Base

(PL)

1 Okular
2 Głowica monokularowa (tubus okularu)
3 Obrotowa głowica z obiektywami
4 Pokrętło regulacji ostrości
5 Uchwyty na preparaty
6 Stolik
7 Obrotowa diafragma
8 Oświetlenie dolne
9 Włącznik dolnego oświetlenia
10 Podstawa

(PT)

1 Ocular
2 Cabeça monocular (tubo da ocular)
3 Revólver giratório com objetivas
4 Botão de focagem
5 Suportes para espécimes
6 Área de inserção do vidro
7 Disco do diafragma
8 Iluminação inferior
9 Interruptor da iluminação inferior
10 Base

(RU)

1 Окуляр
2 Монокулярная насадка (окулярная трубка)
3 Револьверное устройство с объективами
4 Ручка фокусировки
5 Держатели препарата (зажимы)
6 Предметный столик
7 Диск с диафрагмами
8 Нижняя подсветка
9 Выключатель нижней подсветки
10 Основание микроскопа

(TR)

1 Göz merceği
2 Tek gözlü kafa (göz merceği borusu)
3 Objektifli döner burun parçası
4 Odaklama düğmesi
5 Numune tutucu
6 Nesne tablası
7 Diyafram diski
8 Alt aydınlatma
9 Alt aydınlatma düğmesi
10 Taban

DISCOVERY MICRO MICROSCOPES

EN

General use

The Discovery Micro microscope is safe for health, life and property of the consumer and the environment when properly used, and meets the requirements of international standards. The microscope is designed for observing transparent objects in the transmitted light using the bright field method. May be used by kids over 5 years old.

Caution! Children should use the microscope under an adult's supervision only.

Microscope parts

- **Base.** It supports the weight of the microscope and houses the illumination source, electronics and control mechanisms.
- **Eyepiece tube.** Combines the eyepiece with the objectives system.
- **Eyepiece and objective.** Consist of lenses that allow magnifying the image. The total magnification is calculated by multiplying the eyepiece magnification to the objective magnification.
- **Revolving nosepiece.** This triple nosepiece with 3 pre-installed objectives allows you to change objectives smoothly and easily.
- **Stage.** Sturdy and reliable stage with two specimen holders can be used to move your slides while observing them. The lower illumination light passes through the opening in the middle of the stage.
- **Diaphragm disk.** Is located below the stage and has apertures of various diameter to adjust the passing light rays. Rotate the disk to select the desired aperture.
- **Focusing knob.** A coarse focusing system allows moving the stage up and down adjusting the sharpness of the specimen image.
- **Lower illumination.** LED illumination with adjustable brightness can be powered by 2 AA batteries. The lower illumination is used to observe transparent objects. Using a supplemental light source, such as a table lamp, directed at the specimen will enable you to observe less transparent objects.

Using the microscope

Getting started

- Unpack the microscope and make sure all parts are available.
- Move the stage to the lowermost position using the focusing knob.
- Make sure the batteries are correctly installed in the battery compartment; insert new batteries if required.
- Slowly adjust the illumination brightness, from dark to light.

Focusing

- Place a specimen on the stage and fix it with the holders.
- Select the 4x objective rotating the revolving nosepiece.
- Move the specimen to place its thickest part exactly under the objective.
- Rotate the focusing knob to slowly raise the stage until the objective is close to the specimen; keep checking the distance between the objective and the object to avoid their contact. **Caution!** The objective should not touch the specimen, otherwise the objective or/and the specimen might be damaged.
- Look through the installed eyepiece and lower the stage slowly rotating the focusing knob until you see the specimen image.
- Such adjustment protects the frontal lens from contacting the object when you use objectives of other magnifications; though, slight refocusing might be required.
- If the image is too bright, rotate the diaphragm disk until the passing light ray is reduced to a comfortable brightness level. If the image is too dark, select a larger aperture to increase the light ray.

Selecting the objective

Start your observations with the lowest magnification objective and select a specimen segment for detailed research. Then move the specimen to center the selected segment in the field of view, to make sure it keeps centered when the objective is changed to a more powerful one. Once the segment is selected, you should center its image in the microscope's field of view as precisely as possible. Otherwise, the desired segment might fail to center in the field of view of the higher power objective. Now you can switch to a more powerful objective by rotating the revolving nosepiece. Adjust the image focus if required.

Specifications

Type	biological
Magnification, x	40–640
Head	monocular, inclined 45°
Optics material	optical plastic
Body material	plastic
Eyepieces	WF10x–WF16x
Revolving nosepiece	3 objectives
Objectives	4x, 10x, 40x
Stage, mm	diameter 82, with specimen holders
Stage moving range, mm	0–15, vertical
Focusing	coarse
Diaphragm disk	+
Illumination	lower LED illumination with adjustable brightness
Power source	2*AA batteries

The manufacturer reserves the right to make changes to the product range and specifications without prior notice.

Note: Batteries might be pre-installed in the battery compartment by the manufacturer.

Care and maintenance

- **Never, under any circumstances, look directly at the Sun, another bright source of light or at a laser through this device, as this may cause PERMANENT RETINAL DAMAGE and may lead to BLINDNESS.**
- Take necessary precautions when using the device with children or others who have not read or who do not fully understand these instructions.
- After unpacking your microscope and before using it for the first time check for integrity and durability of every component and connection.
- Do not try to disassemble the device on your own for any reason. For repairs and cleaning of any kind, please contact your local specialized service center.
- Protect the device from sudden impact and excessive mechanical force. Do not apply excessive pressure when adjusting focus. Do not overtighten the locking screws.
- Do not touch the optical surfaces with your fingers. To clean the device exterior, use only special cleaning wipes and special optics cleaning tools from Levenhuk. Do not use any corrosive or acetone-based fluids to clean the optics.
- Abrasive particles, such as sand, should not be wiped off lenses, but instead blown off or brushed away with a soft brush.
- Do not use the device for lengthy periods of time, or leave it unattended in direct sunlight. Keep the device away from water and high humidity.
- Be careful during your observations, always replace the dust cover after you are finished with observations to protect the device from dust and stains.
- If you are not using your microscope for extended periods of time, store the objective lenses and eyepieces separately from the microscope.
- Store the device in a dry, cool place away from hazardous acids and other chemicals, away from heaters, open fire and other sources of high temperatures.
- When using the microscope, try not to use it near flammable materials or substances (benzene, paper, cardboard, plastic, etc.), as the base may heat up during use, and might become a fire hazard.
- Always unplug the microscope from a power source before opening the base or changing the illumination lamp. Regardless of the lamp type (halogen or incandescent), give it some time to cool down before trying to change it, and always change it to a lamp of the same type.
- Always use the power supply with the proper voltage, i.e. indicated in the specifications of your new microscope. Plugging the instrument into a different power outlet may damage the electric circuitry of the microscope, burn out the lamp, or even cause a short circuit.
- **Seek medical advice immediately if a small part or a battery is swallowed.**

Battery safety instructions

- Always purchase the correct size and grade of battery most suitable for the intended use.
- Always replace the whole set of batteries at one time; taking care not to mix old and new ones, or batteries of different types.
- Clean the battery contacts and also those of the device prior to battery installation.

- Make sure the batteries are installed correctly with regard to polarity (+ and -).
- Remove batteries from equipment that is not to be used for an extended period of time.
- Remove used batteries promptly.
- Never attempt to recharge primary batteries as this may cause leakage, fire, or explosion.
- Never short-circuit batteries as this may lead to high temperatures, leakage, or explosion.
- Never heat batteries in order to revive them.
- Remember to switch off devices after use.
- Keep batteries out of the reach of children, to avoid risk of ingestion, suffocation, or poisoning.
- Utilize used batteries as prescribed by your country laws.

Levenhuk Warranty

Levenhuk products, except for their accessories, carry a **2-year warranty** against defects in materials and workmanship. All Levenhuk accessories are warranted to be free of defects in materials and workmanship for **six months** from the purchase date. The warranty entitles you to the free repair or replacement of the Levenhuk product in any country where a Levenhuk office is located if all the warranty conditions are met.
For further details please visit our web site: www.levenhuk.com/warranty
If warranty problems arise, or if you need assistance in using your product, contact the local Levenhuk branch.

МИКРОСКОПИ DISCOVERY MICRO

BG

Обща употреба

Микроскопът Discovery Micro е безопасен за здравето, живота и имуществото на потребителя, както и за околната среда, когато се използва правилно, и отговаря на изискванията на международните стандарти. Микроскопът е предназначен за наблюдение на прозрачни обекти в предавана светлина, използвайки метода на светлото поле. Може да се използва от деца на възраст над 5 години.

Внимание! Децата могат да използват микроскопа само под наблюдението на възрастен.

Части на микроскопа

- **Основа.** Тя поддържа тежестта на микроскопа и съдържа източника на осветление, електрониката и механизмите за управление.
- **Тръба на окуляра.** Комбинира окуляра със системата на обективите.
- **Окуляр и обективи.** Състои се от лещи, които позволяват увеличаване на изображението. Общото увеличение се изчислява чрез умножаване на увеличението на окуляра с увеличението на обектива.
- **Револверна глава.** Тази тройна глава с 3 предварително монтирани обектива Ви позволява да сменяте обективите плавно и безпроблемно.
- **Предметна маса.** Здравата и надеждна предметна маса с два държача за образци може да се използва за преместване на Вашите образци, докато ги наблюдавате. Долното осветление преминава през отвора в средата на предметната маса.
- **Дискова диафрагма.** Разположена е под предметната маса и има отвори с различен диаметър за регулиране на преминаващите светлинни лъчи. Завъртете диска, за да изберете желаната апертура.
- **Бутон за фокусиране.** Системата за грубо фокусиране позволява преместване на предметната маса нагоре и надолу, за да се регулира остротата на изображението на образеца.
- **Долно осветление.** Светодиодното осветление с регулируема яркост може да се захранва с 2 батерии AA. Долното осветление се използват за наблюдение на прозрачни обекти. Използването на допълнителен светлинен източник (като настолна лампа), насочен към образеца, ще Ви позволи да наблюдавате по-малко прозрачни предмети.

Използване на микроскопа

Подготовка

- Разопаковайте микроскопа и се уверете, че всички части са налице.
- Преместете предметната маса до най-долното положение с помощта на бутона за фокусиране.
- Уверете се, че батериите са поставени правилно в отделението за батериите. Поставете нови батерии,