User manual
Benutzerhandbuch
Manual de usuario
Gebruikershandleiding

BMS Microscopes

Article code: 74777

BMS 136 Polarisation monocular

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Thank you for choosing BMS Microscopes.

The BMS 136 polarisation microscope is designed for the observation and analysis of birefringent materials such as crystals and minerals. With its robust construction and precise optical components, it provides clear, high-contrast images for educational, laboratory and hobby applications. The integrated polarisation features allow detailed study of structures that are not visible under standard illumination, making it a reliable solution for both basic and more advanced investigations.

Eyepiece: WF 10x/18 mm with pointer, locked

Tubu: 45º inclined, not rotable

Head: monocular, 360º rotatable

Anti-fungus optics

Analyzer: insertable in the optical path with adjustable rotation for precise control of the polarization direction

Nosepiece: triple

Objectives: DIN achromatic 4x (optional 10x and 40x available) Magnification: 40x, 100x, 400x

Stage: rotable round object table with scale. Approx. Ø 125 mm. with fine vernier gradiations. Provided with stage clamps for holding specimen

Sub-stage condenser: Abbe condenser with N.A. 1.25 that is adjustable in height and includes a built-in iris diaphragm

Polarizer: integrated in the condenser, rotatable 360° to control the direction of polarized light

Focussing: coaxial ball bearing guideways coarse and fine focussing knobs on both sides

Illumination: built-in, adjustable halogen illumination 6 V/20 W

Anti-bacterial paint

Power supply: 230 V / 50 Hz with fuse

Including: detachable power cord, dust cover, manual and blue filter

Package dimensions (Width x Height x Depth): 33 x 43 x 21 cm

Gross weight: 4,5 kg

Warranty: 5 years

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GETTING STARTED

• The objectives have already been installed in the nosepiece in the correct sequence. They are parfocal and pre-centered. Unless necessary, do not remove the objectives.

• Place the plug into an earthed power outlet (check that the correct voltage is supplied: 230 V / 50 Hz). Switch on the halogen illumination.

• To guide the light efficiently through the specimen and optical system, adjust the condenser and iris diaphragm as follows:

- Open the iris diaphragm completely
- Rotate the nosepiece to position the 4x objective over the specimen
- Place the slide on the rotating stage and secure it with the stage clamps
- Adjust the rotating stage to center the specimen
- Use the coarse focusing knob to bring the specimen into focus
- Use the fine focusing knob to refine the image

• Adjust the Abbe condenser (N.A. 1.25) for optimal illumination:

- Raise or lower the condenser until the field of view is evenly illuminated
- Adjust the iris diaphragm to control contrast and brightness
- Use the built-in filter holder if additional contrast is required (e.g. blue filter)

• When switching magnification by rotating the nosepiece, minor refocusing may be required using the fine focus adjustment only.

POLARISATION SYSTEM

• This microscope is equipped with a polarizing system for birefringence observation

• The polarizer is integrated in the condenser and the analyzer is insertable in the optical path

• The rotating stage (Ø 125 mm) allows precise angle adjustment of the specimen and includes a vernier scale for accurate angular measurement

• Polarization effects can be observed by rotating the stage

• For optimal results, ensure the specimen is properly centered before rotation

POWER OPTIONS

• Main power cable (100...230V~/50Hz), available for EU (item no. 76995), UK (item no. 76999), CH (item no. 76998) and USA (item no. 76996).

BULB REPLACEMENT

• Switch off the microscope and disconnect it from the mains power supply

• Remove the eyepieces to prevent them from falling out

• Carefully place the microscope on its back to access the base

• Loosen the screw and open the lamp cover

• Remove the old bulb from the holder

• Insert a new bulb of the correct type. Do not touch the bulb with bare fingers; use tissue or the original packaging

• If the bulb has been touched, clean it with a cloth lightly moistened with alcohol

• Close the lamp cover and tighten the screw

FUSE REPLACEMENT

• Switch off the microscope and disconnect it from the mains power supply

• Remove the power cord

• Unscrew the fuse holder using a screwdriver

• Remove the old fuse and insert a new fuse of the correct specification

• Screw the fuse holder back into place securely

DOUBLE SAFETY IS GUARANTEED

• Full isolation from mains power through DPDT switch

• Indicator lamp shows when the microscope is powered on

• Adjustable voltage control for halogen lamp intensity

• Built-in fuse protection for electrical safety

• The BMS 136 microscope uses a halogen illumination system (6 V / 20 W)

SAFETY INFORMATION

• Always disconnect the power plug before maintenance

• Use the microscope in a clean, stable environment

• Ensure safe working conditions for all users

• Clean all optical parts that come into contact with specimens

• Place the microscope on a stable, level surface

• Always use original accessories

CAUTION

• Delicate optical and mechanical components may be damaged if handled improperly.

• Do not expose the microscope to direct sunlight, high humidity, dust or high temperatures

• Carry the microscope carefully using both hands

• Do not hold the microscope by the stage or focusing knobs

• Remove all specimens before transporting the unit

CARE & MAINTENANCE

• Use a dedicated microscope maintenance kit (recommended item no. 76026)

• Keep all optical surfaces clean and protected with the dust cover when not in use

• Avoid contamination of objectives and eyepieces

• Use a soft lint-free cloth slightly moistened with distilled water or optical cleaning solution

• Alcohol solution may be used for stubborn contamination

• Clean in circular motion from center to edge of the lens

• Do not use zig-zag wiping motions

• Do not immerse optical parts in liquid

• Use mild detergent only for painted metal parts

• Never use organic solvents

• Do not remove objectives from the nosepiece

• Do not dismantle the microscope; servicing must be performed by authorized personnel only

SPECIFICATIONS

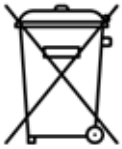
For more specifications, please view the product page on the website: www.bmsmicroscopes.com

It is within our company policy to develop continuously. BMS Microscopes b.v. reserves the right to change design and specifications without further notice.

BMS Microscopes b.v.
Essebaan 50
2908 LK Capelle aan den IJssel
The Netherlands
Tel.: +31(0)10 458 42 22
E-mail: sales@bmsmicroscopes.com

Environment protection first!

Your appliance contains valuable materials which can be recovered or recycled. Leave it at a local civic waste collection point.



General troubleshooting tables

If difficulties should be encountered in the course of operation, and no major instrument malfunctions can initially be detected, please recheck the symptoms, referring to the tables provided below, before contacting your service representative.

OPTICAL SYMPTOMS	CAUSES	COUNTERMEASURES
Darkness at the periphery, or uneven viewfield brightness	Revolving nosepiece not in click-stop position (objective not centered in optical path)	Revolve to click-stop position (swing the objective correctly into the optical path)
	Field diaphragm not centered	Centering
	Field diaphragm closed too far	Open properly
	Dirt or dust on the lens(condenser, objective, eyepiece etc)	Cleaning
Dirt or dust in the viewfield	Dirt or dust on the lens (condenser, objective, eyepiece etc)	Cleaning
	Dirt or dust on the slide	Cleaning
	Condenser position too low	Correct positioning
Poor image quality (low resolution or contract)	No coverglass attached to the slide	Attach coverglass
	Coverglass too thick or thin	Use coverglass of specified thickness (0.17mm)
	Slide upside-down	Turn over the slide
	Immersion oil on dry system objective (especially 40X)	Cleaning
	Air bubbles in immersion oil	Remove bubbles
	Condenser aperture and field diaphragm opened too far	Close properly
	Dirt or dust on the entrance lens	Cleaning
	Condenser aperture closed too far	Open properly
	Condenser position too low	Raise to the position where the diaphragm image is in focus
Image dark on one side	Revolving nosepiece not in click-stop position	Revolve to click-stop position
	Floating specimen	Fasten securely
Image shifts during focus	Specimen rises from stage surface	Place it stable
	Revolving nosepiece not in click-stop position	Revolve to click-stop position
Image tinged yellow	Daylight filter not used	Use daylight filter
Insufficient illumination brightness	Condenser aperture too small	Readjust aperture
	Condenser position too low	Correct positioning
	Dirt or dust on the lens (condenser, objective, eyepiece etc)	Cleaning

MECHANICAL SYMPTOMS	CAUSES	COUNTERMEASURES
Specimen image unsmooth	Mechanical stage not securely fastened	Tighten all fasteners
Image not focusable with high power objectives	Slide upside-down	Turn slide over
	Coverglass too thick	Use coverglass of specified thickness (0.17mm)
Binocular image not integrated	Interpupillary distance not correctly adjusted	Adjustment
Excessive eye fatigue	Incorrect diopter adjustment	Correct adjustment
	Inadequate brightness or illumination	Adjust brightness with control dial

ELECTRICAL SYMPTOMS	CAUSES	COUNTERMEASURES
Lamp does not light when switched ON	No electrical power	Check power cord connection
	Halogeen lamp not inserted	Insert correctly
	Halogeen failure	Replacement: if the same symptom occurs after replacing the lamp, contact your dealer
Insufficient illumination brightness	Unspecified lamp bulb used	Replace with specified lamp bulb
	Voltage too low	Increase brightness with control dial
Unstable lamp brightness	Halogeen lamp about to fail	Replacement
	Halogeen lamp not correctly inserted into socket	Check for positive connection