

Motic[®]

MORE THAN MICROSCOPY



SILVER30 SERIES

INSTRUCTION MANUAL | ENGLISH

Motic[®] | SILVER LINE

SILVER30 Series

The SILVER30 Series of stereo microscopes offers three models from which to choose. The SILVER30B features fixed magnifications of 10X and 30X, the SILVER30-S features fixed magnifications of 20X and 40X and the SILVER39Z has a variable zoom magnification range of 10X~30X, offering extra versatility.

All of them are cordless and include energy-efficient variable LED illumination with three illumination systems to choose from (axial, incident and/or transmitted), “one-touch” stage clips, USB 5V output located on the stand and diopter adjustment on the left eyepiece. Its design also includes a built-in carrying handle and a cord-hanger for safe and hassle-free cord storage. Its features make this series ideal for high school classrooms and up.



- 01 Eyepiece
- 02 Diopter Adjustment
- 03 Eyepiece tube
- 04 Head
- 05 Turret
- 06 Top turret & angled illuminators
- 07 Stage Clips
- 08 Stage Plate
- 09 Bottom Illuminator
- 10 Cord holder
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- 12 Arm
- 13 Focusing Control knob
- 14 Stand
- 15 Power Switch
- 16 Illuminator On/Off Switches
- 17 Light intensity control

ARM

The frame that connects the head and the base of the microscopes. It also houses the illumination switch, carrying handle, stage ring, coaxial focus controls, and the incident (top) light.

COMBI FOCUS

The coaxial focusing system combines both the coarse and fine focus into one focusing knob located on both sides of the microscope.

DIOPTER ADJUSTMENT

Located on the left eyepiece tube of the SILVER30 Series. This adjustment is used to fine focus the optics to compensate for visual differences between the user's eyes.

BOTTOM ILLUMINATOR

This is the light source mounted in the base to provide transmitted illumination.

EYEPIECE

The upper optical element that further magnifies the primary image of the specimen and brings the light rays in focus at the eyepoint.

EYEPIECE TUBE

This is the part of the head that holds the eyepieces in place. Set screws in the eyepiece tubes can be used to lock the eyepieces in place.

STAGE CLIP

Used to hold specimen in place.

FOCUSING CONTROL KNOB

The focusing control knob located on either side of the stand are used to raise or lower the head to bring the specimen into focus. The control knobs incorporate a slip clutch system which prevents the head from traveling past both ends of the focusing range. When the focusing limit is reached, the clutch system begins to slip to prevent gear damage.

HEAD

The 360° rotatable component that contains all of the optical elements of the stereo microscope including the eyepieces, refracting mirrors and objective lenses. The head of the SILVER30 series is designed to allow users to adjust the interpupillary distance of the eyepieces for proper viewing.



LIGHT INTENSITY CONTROL

The intensity of the top (incident light) LEDs or bottom (transmitted light) LED can be adjusted to the preferred brightness (0 through 10) by using the dimmer control located on the side of the base.

ILLUMINATOR ON/OFF SWITCHES

A tri-illumination system is incorporated into the stand. The illumination system is controlled by top (incident light) and bottom (transmitted light) on/off switches located at the base of the stand. The incident illuminator is used for opaque specimens, while the transmitted illuminator effectively illuminates the internal structure of transparent specimens. Translucent specimens may be seen in greater detail if both illuminators are used simultaneously.

MAGNIFICATION KNOB

Used to change the SILVER30 series magnification settings.

STAGE PLATE

Frosted glass, black and white stage plates are provided with the microscope stand. The frosted glass stage plate allows light from the bottom illuminator to pass through. The black and white stage plates can be used for additional contrast to the specimen that is being viewed.

STAND

Used to support the stereo microscope head. The height is adjustable which allows the head to change its focusing range. The stand also contains the top and bottom illuminators.

TOP ANGLED ILLUMINATOR

The top 50mW LED light source is fixed at a 45° angle.

TOP TURRET ILLUMINATOR

The top 6 x 60mW LED light source is fixed in a downward in a vertical position to provide maximum illumination of the specimen.

TURRET

The round barrel that houses the objective lenses. The SILVER30 Series has magnifications that can be changed by rotating the black turret magnification knob to a different set of objective lenses.



OPERATING WITH YOUR STEREO MICROSCOPE

- 1.** Place the specimen onto the stage plate and select the type of illumination. If the specimen is transparent, turn on the bottom illumination. If the specimen is opaque, turn on the top illuminator.
- 2.** The magnification knob is located on the right hand side of the microscope head. The knob is clearly marked with the optical magnification setting. To change magnifications, rotate the black magnification knob in one direction or in the opposite, as far as it will turn. This will place one pair of objectives in alignment for viewing. The power that is in use is marked on the black magnification knob.
- 3.** Look through the eyepieces and rotate the focus control knob to focus the specimen in the field of view.
- 4.** Grasp the eyepiece tubes and move them either closer together or farther apart, to change the interpupillary distance to obtain a clear image. Note, if two separate images are observed, the eyepiece tubes are too far apart and should be moved together. If two overlapping images are seen, the eyepiece tubes are too close together and should be moved apart.
- 5.** Close your left eye and adjust the focus controls so the image is in sharp focus, while viewing with the right eye only.
- 6.** Close your right eye and while viewing with the left eye only, adjust the diopter ring on the left eyetube to bring the image of the specimen into sharp focus. The optical system is now adjusted to your particular vision.



SERVICE, CARE AND CLEANING

Use and store your instrument in a dry environment. When not being used, microscopes should be stored with dust covers in place and illuminators turned off. Avoid direct sunlight, high temperatures, moisture, smoke, and fungus. Your Motic stereo microscope is designed to function satisfactorily with only ordinary maintenance. The instrument should be periodically serviced by a qualified, authorized service technician, who will clean, re-lubricate and perform routine adjustments. Eyepieces should be cleaned as often as necessary to allow unobstructed viewing. Clean the eyepieces by brushing away dust particles using a soft camel hair brush or with air pressure, then moistening the lens by breathing onto it. Wipe the lens carefully with quality lens tissue. If dirt or other foreign matter still remains, it may be necessary to use water or optical cleaner (eyeglass or camera lens). Note: the lens tissue should be moistened, not saturated, for cleaning, after which the lens should be dried using a quality lens tissue. Painted surfaces should be cleaned with soapy water or mild non-abrasive cleaners and a soft cloth. Do not use solvents on painted surfaces. Unauthorized personnel should never disassemble lens assemblies or other precision components. For information regarding service, contact your local authorized Motic dealer or Motic customer service.

BULB REPLACEMENT

Unplug the stereo microscope from the electrical outlet and remove specimens from the stage before you attempt to replace an LED.

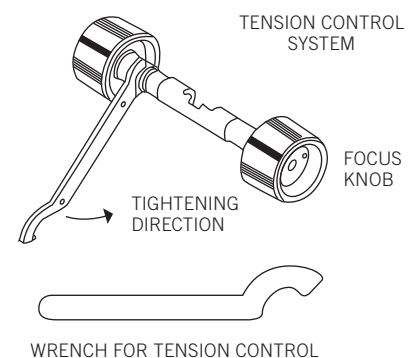
To prolong the life of the LED, you should always turn off the unit when not in use.

The extra long life LED incident (top) illuminator bulbs can be replaced by removing the five retaining screws holding on the Illumination plate. This will require the use of a short handle screw driver. They can then be unclipped and replaced.

The transmitted (bottom) illumination bulb is 50mW LED Bulb. The bottom bulb may be replaced by carefully laying your stereoscope on its side and using a Phillips screw driver remove the four screws securing the rubber feet and base plate to illuminator base. Remove four 3mm Phillips head screws securing lamp housing to lamp bracket; then remove lamp housing. Carefully unplug LED lamp connector. Replace LED lamp assembly and then, reverse the above process

TENSION CONTROL OF FOCUSING MOVEMENT

The focus tension is easily adjusted by using the Motic adjustment wrench. This wrench fits the tension collar found on the focusing controls, between the knob and upright support. A clockwise turn of this collar moves it toward the upright support and increases tension, while a counter clockwise turn moves the collar toward the knob and decreases tension (see illustration).



COMMON PROBLEMS IN MICROSCOPY

CAUTION

NEVER DISASSEMBLE MECHANICAL OR OPTICAL COMPONENTS. THIS SERVICING SHOULD ONLY BE DONE BY AN AUTHORIZED MOTIC TECHNICIAN. THE WARRANTY WILL BE NULL AND VOID IF THE MECHANICAL OR OPTICAL COMPONENTS ARE DISASSEMBLED BY A NON-MOTIC DEALER.

CAUTION

IF YOU HAVE A PROBLEM, YOU MAY BE ABLE TO CORRECT IT YOURSELF.
HERE ARE A FEW COMMON PROBLEMS AND EASY SOLUTIONS YOU MAY WANT TO TRY BEFORE CALLING FOR SERVICE:

PROBLEM	CORRECTION
The illuminator light does not come on	Make sure the microscope is plugged into a functional electrical socket.
	Make sure the bottom light intensity control is set above "0".
	The bulb may need to be replaced. See "Bulb replacement" on page 6.
Unable to bring specimen into focus	Eye lens of the eyepiece is partially unscrewed. Remove the eyepiece and screw the two sections together.
	The black turret knob may need to be fully rotated to align the objective lenses into the correct position.
	The specimen may not be centered properly on the stage and needs to be re-positioned to be in the optical path.
Image of the specimen goes out of the focus all by itself.	Use the tension control collar to tighten the focusing mechanism found on the focusing spindle.
Focusing knobs turn with difficulty even with tension-collar loosened	Microscope should be disassembled, cleaned and re-lubricated by a qualified authorized technician.

SILVER30 CORDLESS SERIES STEREO MICROSCOPE SPECIFICATIONS

MODEL NUMBER	SILVER30-B	SILVER30-S	SILVER39-Z
OBJECTIVES	1X, 3X	2X, 4X	1X – 3X ZOOM
EYEPIECES	N-WF10X/20	N-WF10X/20	N-WF10X/20
TOTAL MAGNIFICATION / FIELD OF VIEW	10X / 20mm 30X / 6.5mm	10X / 10mm 40X / 5mm	10X / 20mm 20X / 10mm 30X / 6.5mm
WORKING DISTANCE	77mm	77mm	77mm
MAX. SPECIMEN HEIGHT	36mm	36mm	36mm
SILVER30 ILLUMINATOR (INCIDENT & TRANSMITTED)	Turret variable 6 x 60mW LED, Top variable 50mW, Bottom 50mW LED Corded Stand	Turret variable 6 x 60mW LED, Top variable 50mW, Bottom 50mW LED Corded Stand	Turret variable 6 x 60mW LED, Top variable 50mW, Bottom 50mW LED Corded Stand



SILVER LINE WARRANTY

Motic assures that the microscope in respect of mechanical and optical parts is guaranteed against defects in material and workmanship for ten years. Electrical and electronical components are covered for two years after purchase. Normal wear, routine maintenance, light bulbs, power supplies, rechargers, batteries, fuses, cords, add-on accessories, damage resulting from repair by unauthorized parties, accident, alteration, shipping, misuse or abuse is not covered. Warranty service is provided by Motic authorized technicians. Determination of warranty is at the technician's discretion.

Other than set forth above, Motic hereby disclaims all warranties, expressed or implied, of fitness for a particular purpose.

Defective products covered by the warranty will be repaired free of charge when they are returned to:

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