

# Flinn Advanced Zoom Stereoscope Owner's Manual

The Flinn Advanced Zoom Stereoscope is a precision instrument used for examining 3-dimensional objects. The top light allows for viewing of solid objects, while the bottom light transmits light through a transparent object.

Please read and adhere to all recommendations in this manual to ensure the best experience and to maintain your stereoscope in good working order. This owner's manual is for the MS1204 model.

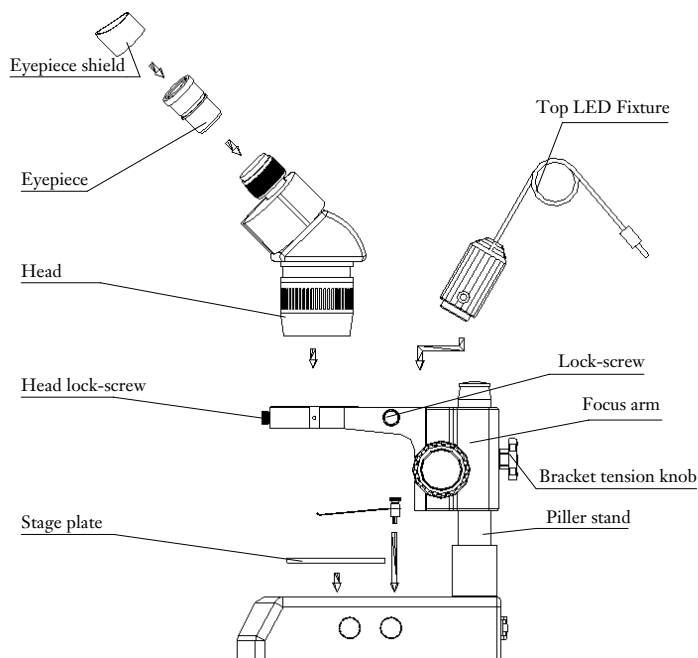
## Unpacking, Assembly and Storage

1. The stereoscope and accessories have been carefully packed to ensure they arrive in good working order. Retain all packaging in the event you need to transport, store or return the stereoscope for service. If it becomes necessary to ship the stereoscope for any reason, pack it in the original molded container and in another box, secured for transport. Inadequate shipping or transport may result in damage to your stereoscope.
2. The Flinn Advanced Zoom Stereoscope arrives in two boxes, one with the stand and focus arm and the other with the body and eyepieces. Inspect the contents and container upon receipt. Each stereoscope includes the following:

- a. Stereoscope body
- b. Focus arm with top LED fixture
- c. Pillar stand
- d. Two Plan achromat WF 10X highpoint eyepieces.
- e. Dust cover.
- f. Glass stage plate.

*Note:* Refer to Figure 1 when assembling the stereoscope.

3. Slide the focus arm bracket over the pillar stand and secure with the bracket tension knob. Ensure the focus arm is aligned over the base.
4. Seat the stereoscope body in the focus arm and secure the two lock screws on either side of body.
5. Loosen the eyepiece lock screws. Insert the eyepieces into the binocular head, ensuring the hash mark on the eyepiece is aligned at the top of the binocular head. Tighten the eyepiece lock screws.
6. Place the stage plate on the stage.
7. Connect the stereoscope to power.
8. Always handle and move stereoscope carefully by securely holding the arm and base of the stereoscope. Avoid impact or abrupt movements during transport. *Note:* Carrying the stereoscope head or focus knobs will damage the stereoscope.
9. Store stereoscopes in a dry, cool and clean place away from direct sunlight with the dust cover in place.

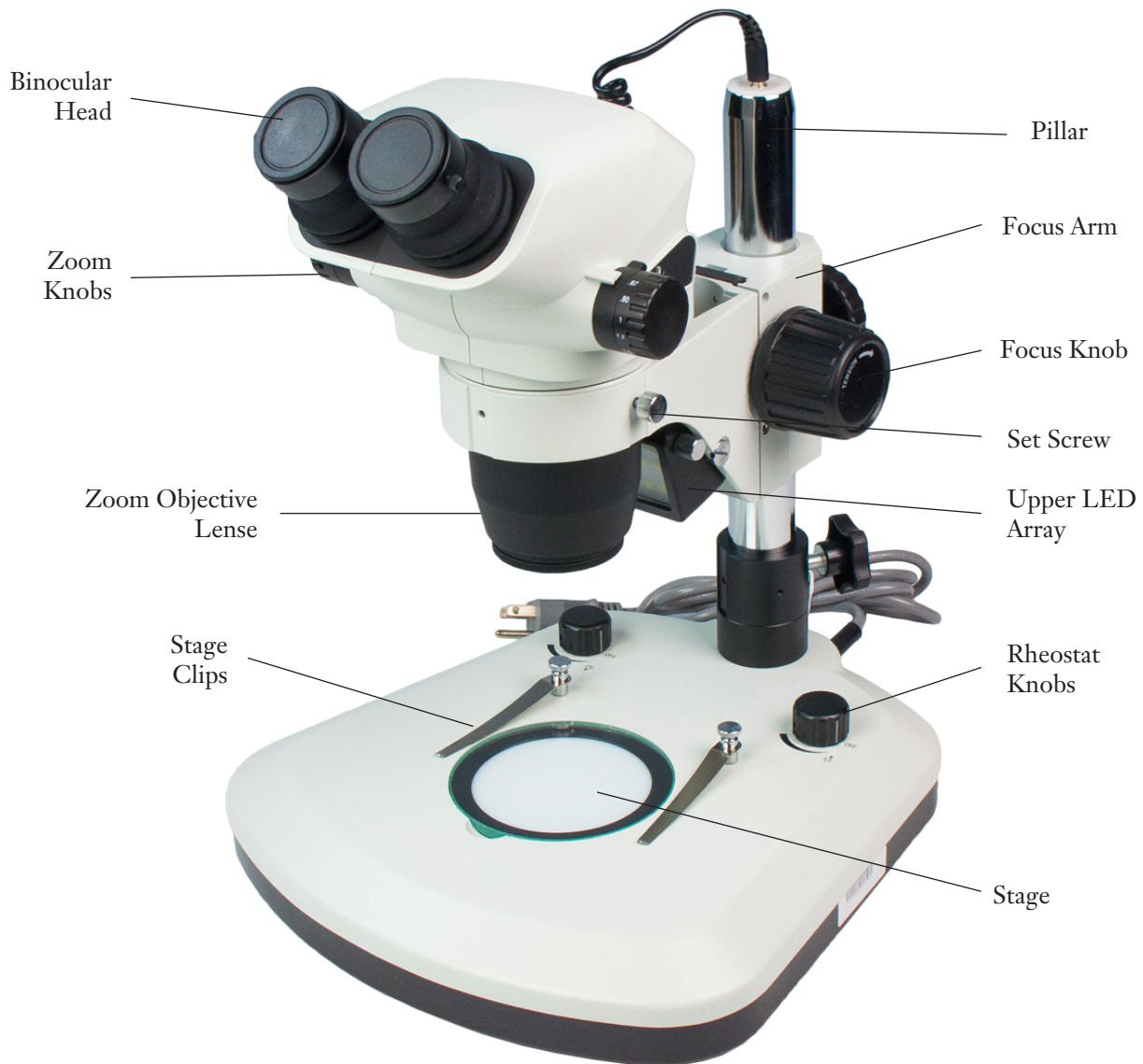


**Figure 1.**

## Description of Components *(Refer to diagram below.)*

1. Eyepieces (ocular lenses): Lenses closest to the eye that magnify the primary image formed by the objective lens. This model comes equipped with Plan achromat (WF) 10X eyepieces.
2. Eyepiece shield: Rubber guards that help position the user's eyes and blocks incidental light.
3. Diopter ring: Focusing knob on both eyepieces. Used to compensate for differences in vision between the right and left eye.
4. Objective lens: Lens closest to the specimen. This model is equipped with a zoom objective that magnifies from 0.67X to 4.5X.

5. Zooming knobs: Pair of knobs that adjust the magnification of the image. There are stops at specified intervals to assist with determining the level of magnification.
6. Pillar stand and focus arm: Independent parts allow for movement of the focus arm to accommodate a large variety of sample sizes.
7. Stage: Platform of the stereoscope where the sample is placed.
8. Focusing knobs: Raises or lowers the objective lens to bring the sample into focus.
9. Illumination: Top and bottom LED illumination provides constant and reliable illumination with adjustable brightness. They can be used independently or together.
10. LED control knobs: Adjusts the level of brightness of the top and bottom LEDs.



## Operation

1. Place the stereoscope in front of you with the eyepiece in a comfortable position. Place the sample in the center of the viewing area.
2. Turn on the stereoscope using the power switch on the back. Use the light control knobs to independently control the incidental light (top) or transmitting light (bottom).
3. Adjust the focus arm height so the sample is approximately 10 cm from the objective lens. Tighten the bracket tension knob to secure. The lower bracket is an additional safety mechanism. Move it up so that it abuts the focus arm and tighten.
4. Set interpupillary distance by pushing the eyepieces closer together or farther apart. The interpupillary distance is correct when the viewing field is one, clear circle.
5. The diopter is adjustable on both eyepieces. To start, rotate the right and left diopter adjustment ring to zero. After zooming in to the highest magnification, focus with both eyes using the main focus knob. Next, view the sample with only the right eye and adjust the diopter ring until the image is clear. Repeat this process with the left eye.
6. Rotate the zoom knob to the lowest magnification.
7. Ensure that the sample is in the center of the viewing area before increasing the magnification. Rotate the zoom knob to adjust the magnification level.

## Zoom Objective Specifications and Operation

	Objective Magnification Range	Object Field Diameter (mm)	Working Distance
<b>Minimum</b>	0.67X	33 mm	110 mm
<b>Maximum</b>	4.5X	5 mm	110 mm

1. To make measuring items more accurate, the microscope is equipped with click stops at labeled intervals.
2. The click stops can be disabled by rotating the click stop set screw located near the zoom knob in a counter-clockwise direction using a hex wrench.
3. To limit the minimum or maximum magnification, use the limit rings located on the zoom knobs.
4. Use the right knob to set the maximum zoom and the left knob to set the minimum magnification.
5. Use a hex wrench to loosen the lock screws of the right limit ring and the left limit ring.
6. Rotate the right zoom knob, to align the desired maximum magnification with the scale. Tighten using the hex wrench.
7. Repeat with the left zoom knob to set the minimum magnification. Tighten using the hex wrench.

## Maintenance

**WARNING:** For your own safety, make certain that the power supply is unplugged and the power switch is off before maintaining your stereoscope.

1. Optical maintenance. *Note:* Do not attempt to disassemble any lens components. Consult a stereoscope service technician if any repairs are needed that are not covered by these instructions.
  - a. Fingerprints or other matter on the front lens element of the objective lens is the single most common reason that causes difficulty in focusing the microscope. Before having costly servicing done, make certain to examine the front lens element with a magnifying glass.
  - b. Prior to cleaning any lens surface, brush dust or dirt off lens surfaces using a camel hair brush or compressed air.
  - c. Clean only the outer lens surface. Use lens cleaner or distilled water on lens paper to gently wipe the objective lens. Wipe lenses with a circular motion, applying as little pressure as possible. Avoid wiping a dry lens surface as lenses are scratched easily. If excessive dirt or oil gets on lens surface, use the following procedure to clean it. Dip a cotton swab in xylene and gently swab the lens. Immediately, dip a second cotton swab in ethyl alcohol and gently swab the lens. Immediately after cleaning, remove all solvents so as not to damage the cement or plastic components.

2. Mechanical maintenance

- a. The focus tension adjustment prevents the head from drifting down from its own weight and causing the image to move out of focus. This has been adjusted at the factory, but over the course of time it may loosen and cause the head of the microscope to slip downward on the focusing block.
- b. To adjust the tension, move the head to its highest position. Hold the right focus adjustment knob still while turning the left focus knob. Turning clockwise tightens the tension while turning counter-clockwise loosens the tension.
- c. Metal parts: Use a clean, damp cloth to remove dust or dirt from metal parts, followed by a dry cloth.

## Troubleshooting

Symptom	Cause	Solution
The side of the field of view is dark or not even.	Lenses are dirty.	Clean the lens.
Double image.	Interpupillary distance is incorrect.	Adjust eyepieces to change interpupillary distance.
	Diopter adjustment is incorrect.	See step 4 under <i>Operation</i> to correct diopter adjustment.
Unclear image.	Dirt on objective lens or eyepiece.	Clean according <i>Optical Maintenance</i> instructions.
Image does not stay in focus.	Head drifts down from own weight.	Adjust the tension control.
The specimen looks dark and the background is bright.	The bottom light is in use.	Use the top light.
The field of view is not bright enough.	Stains or dust have accumulated on the objective or eyepieces.	Clean lens.
	Dimmer is too low.	Adjust the dimmer switch.
The light does not work.	No power to the light.	Check the connection of the power cord.
	Top light is not connected to power.	Check the connection of the top light power cord to the top of the pillar.
	The bulb burned out too soon.	The voltage is too high.

## Limited 5-Year Warranty

Flinn Scientific warrants the stereoscope against manufacturer defect for five years from the date of purchase. Please contact Flinn Scientific at [flinn@flinnsci.com](mailto:flinn@flinnsci.com) or 1-800-452-1261.