

User Manual

Binocular Zoom Stereo Microscope with Boom Stand

Model G421HD



MicroscopeNet.com

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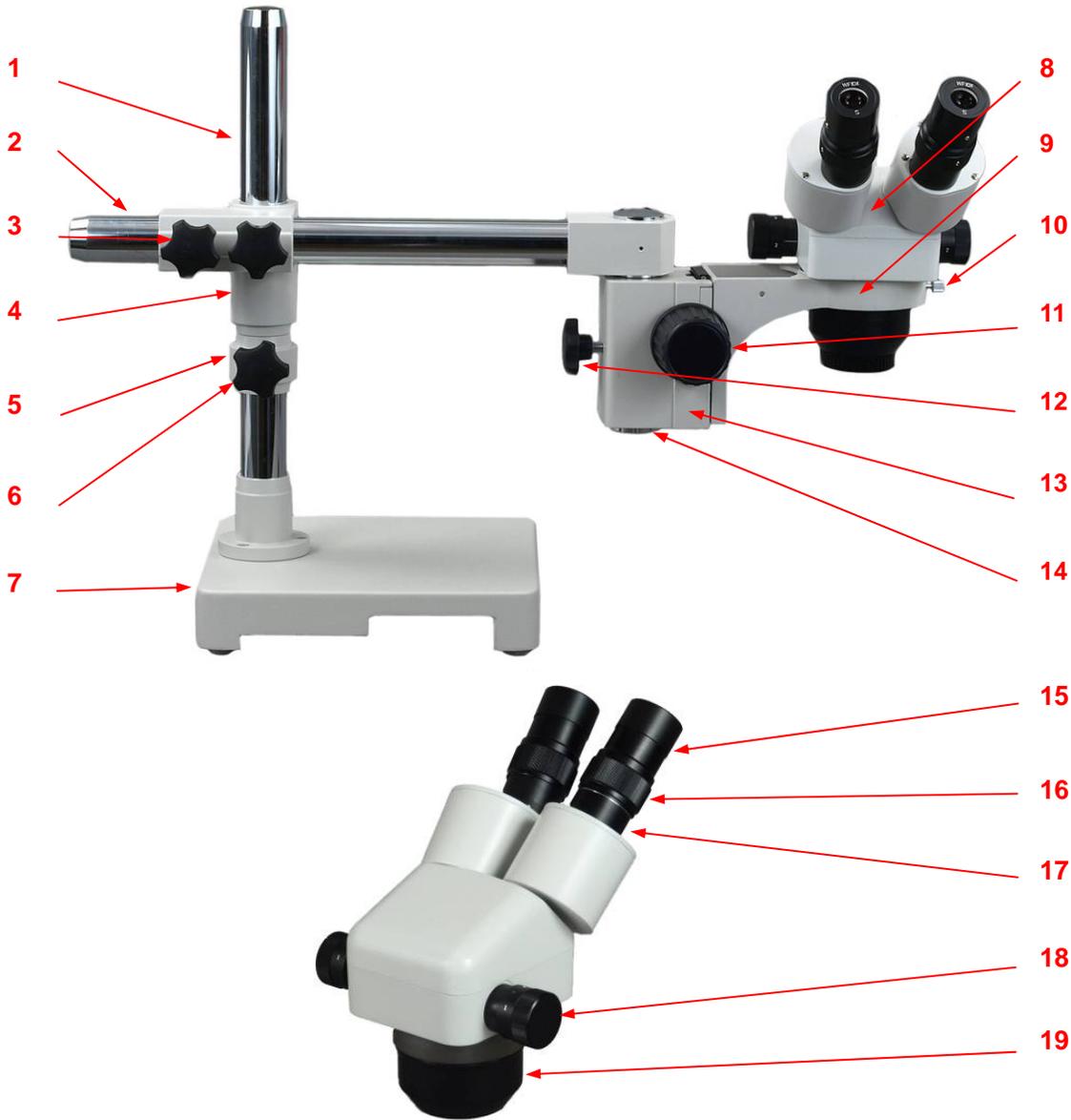
i. Caution

1. Find the “UP” sign and place the Styrofoam container on the table or bench so that the arrow is pointing upward. Open the shipping carton carefully to prevent any accessories or small items (i.e. eyepieces) from dropping and being damaged.
2. Do not discard the molded Styrofoam container. The container should be retained should the microscope ever requires reshipment.
3. Keep the instrument out of direct sunlight, high temperature or humidity, and dusty environments. Ensure that the microscope is located on a smooth, level and firm surface.
4. The boom stand is heavy. Put it on a sturdy and level surface. Be careful during assembly, operating, or moving it.

ii. Care and Maintenance

1. Do not attempt to disassemble any component including eyepieces, objectives or focusing mechanism.
2. Keep the instrument clean; remove dirt and debris regularly. Accumulated dirt on metal surfaces should be cleaned with a damp cloth. More persistent dirt should be removed using a mild soap solution. **Do not use organic solvents for cleansing.**
3. The outer surface of the optics should be inspected and cleaned periodically using an air stream from an air bulb. If dirt remains on the optical surface, use a soft cloth or cotton swab dampened with a lens cleaning solution (available at camera stores). All optical lenses should be swabbed using a circular motion. A small amount of absorbent cotton wound on the end of a tapered stick makes a useful tool for cleaning recessed optical surfaces. Avoid using an excessive amount of solvents as this may cause problems with optical coatings or cemented optics or the flowing solvent may pick up grease making cleaning more difficult.
4. Store the instrument in a cool, dry environment. Cover the microscope with the dust cover when not in use.

1 Components Illustration



- 1. Stand Vertical Post
- 2. Stand Horizontal Bar
- 3. Horizontal Locking Knobs
- 4. Stand Block
- 5. Secure Collar
- 6. Locking Knob
- 7. Stand Base
- 8. Microscope Body
- 9. Microscope Holder
- 10. Locking Thumb Screw

- 11. Focus Knob
- 12. Locking Knob
- 13. Focus Block
- 14. Vertical Arm
- 15. Eyepiece
- 16. Diopter Ring
- 17. Eyepiece Tube
- 18. Zoom Knob
- 19. Objective Housing

2 Installation

2.1 Assembly the boom stand

Please refer to the A901 boom stand assembly instruction, which can be downloaded at www.microscopenet.com/Manuals/A901.pdf

2.2 Installing the microscope body

- 1) Loosen the locking thumb screw on the microscope holder.
- 2) Insert the microscope objective housing in to the holder ring, make sure it seats on the ring firmly, and tighten the locking screw.

2.3 Change the Eyepieces

- 1) Loosen the set screw on each eyepiece tube.
- 2) Take off the eyepieces.
- 3) Insert the eyepieces you want to use into the eyepiece tube. Tighten the set screw on each eyepiece tube.

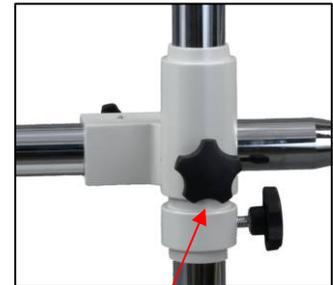
3 Operation

3.1 Adjusting the position of the microscope body

- 1) Loosen the locking knob on the secure collar and slide it down to the bottom.
- 2) Loosen the vertical locking knob on the stand block and slide it to the desired position then tighten the knob. (The height is proper when the distance between the bottom of objective housing and the specimen is around 80 mm or 120 mm if 0.5X auxiliary lens is applied.)

Caution: Hold the horizontal bar with one hand during adjusting the vertical position to prevent it slide down unexpectedly.

- 3) Slide the secure collar up against the stand block bottom and tighten the locking knob on it.
- 4) Loosen the locking knobs on the stand block to adjust the horizontal bar to the desired angle and length in the horizontal plan; then tighten the knobs on the stand block.
- 5) Loosen the locking knob on the focus block to adjust it to the desired angle in the horizontal plan; then tighten the locking knob.
- 6) Loosen the locking thumb screw on the holder ring; then turn the microscope body to the desired direction. Then tighten the locking thumb screw.



Vertical Locking Knob

3.2 Focusing

- 1) Put the specimen under the objective housing.
- 2) Turn the focus knob until the specimen is in focus.
- 3) Turn the zoom knob to get the desired magnification.
- 4) If auxiliary lens is applied, the working distance changed significantly and the horizontal bar has to be moved up or down accordingly.

3.3 Adjusting the focus tension

The focus tension can be adjusted by holding the two focus knobs with your two hands at the same time and turning them in opposite direction.

3.4 Adjusting interpupillary distance

While observing with both eyes, hold the left and right eye tubes, swing inwards or outwards. The interpupillary distance is correct when the left and right fields of view coincide completely.

3.5 Adjusting eyepiece diopter

- 1) Using your right eye only, observe your specimen through the eyepiece and bring it into focus by adjusting the focus knob.
- 2) Then observe the specimen with your left eye only through the left eyepiece. If the specimen is not in focus, rotate the diopter ring until a sharp image is obtained.
- 3) Since both sides are adjustable, you may also do the above in the opposite way, in other words, left eye first and right eye second.

4 Specifications

Model	G421HD
Total Magnification	5X ~ 80X
Microscope Body	Binocular, 45° inclined, 360° swiveling Adjustable Interpupillary distance 55 ~ 75mm (2-3/16" ~ 2-15/16") Adjustable diopter on both eyepiece tubes
Eyepieces	1 pair of SWF10X/22 1 pair of WF20X
Objectives	Zoom 1X ~ 4X Zoom ratio: 1:4
Auxiliary Objective Lens	0.5X
Focus Mechanism	Rack and pinion, focus knobs on both sides Focusing adjustment range 50mm (2")
Working Distance	80mm (3-1/4") 120mm (4-3/4") with 0.5X auxiliary lens
Field of View	Max 20mm (3/4") Or max 37.5mm (1-1/2") with 0.5X auxiliary lens
Illumination	No
Power Supply	No
Boom Stand	Adjusting range: 193 mm (7-5/8") in vertical 245 mm (9-5/8") in horizontal 360° in rotating Holder Ring Inner Diameter: 77 mm
Boom Stand Base	23cm x 23cm (9" x 9")
Dimension	-
Net weight	17 kg (37.4 lb)
Package weight	18.65 kg (41 lb)

5 Troubleshooting Guide

Problem	Cause	Solution
Totally dark in the view field	The cover of objective housing is still on	Take off the cover
Incomplete binocular vision	The interpupillary distance is not correct	Adjust the interpupillary distance
	Diopter is not correct	Adjust the diopter
	The right and left eyepiece are not the same	Check and mount the same eyepieces
Dirt or dust on the view	Dirt or dust on the eyepiece lens, objective lens, auxiliary lens	Clean the lens with a camera cleaning kit
	Dirt or dust on specimen	Clean the specimen
Image Blur when zoomed	Diopter adjustment of the eyepieces is not complete	Complete diopter adjustment
	Focus adjustment is not complete	Complete focus adjustment
Can not focus	The objectives is too far away or too close to the specimen and out of the range of focus stroke	Adjust the height of the horizontal bar so that the distance between the objectives and specimen is about 80mm or 120mm when 0.5X auxiliary lens applied.
The focusing knob is stiff	The focusing knob tension is too tight	Loosen the knob tension
Poor focus during observation due to the unintentional lowering of the microscope head	The focusing knob tension is too loose	Tighten the knob tension