



SX 45

User Guide

SX45 Stereo Zoom Microscope

SX45 Stereo Zoom Microscope

Vision Engineering manufacture a wide range of patented optical systems, offering fatigue-free viewing with superb hand-eye co-ordination, for improved quality and productivity.

To achieve the most from this precision instrument, please read the enclosed assembly instructions, usage and maintenance guidelines.

Safety Statement

Bench stand

Electrical Supply

- Voltage: Electrical description: 230VAC/115VAC 50Hz/60Hz 20W
- Impulse withstand (over voltage):400V

Environmental Conditions

- Indoor use only
- Maximum altitude: 2000M above sea level
- Ambient operating temperature: between 5°C and 40°C
- Storage temperature: between 0°C and 55°C centigrade for 3 months without any adverse effects
- Relative humidity specification: Operating temp up to 31°C: 80%, 34°C: 70%, 37°C: 60% and 40°C: 50%
- Mains voltage supply fluctuations not to exceed $\pm 10\%$ of nominal voltage
- If equipment is not used in a manner as specified, protection provided by the equipment may be impaired
- The product should be located such that the power supply can be unplugged in the event of an emergency

LED Ringlight

Electrical Supply

- Voltage: Electrical description: 100-240VAC 50/60HZ 280mA

Environmental Conditions

- Indoor use only
- Ambient operating temp: between 0°C and 40°C
- Storage temperature: between 0°C and 40°C for 3 months without any adverse effects
- Relative humidity specification: Operating temp up to 45°C: 80%, 28°C: 70%, 20°C: 60% and 16°C: 50%
- Mains voltage supply fluctuations not to exceed $\pm 9\%$ of nominal voltage
- If equipment is not used in a manner as specified, protection provided by the equipment may be impaired
- The product should be located such that the power supply can be unplugged in the event of an emergency

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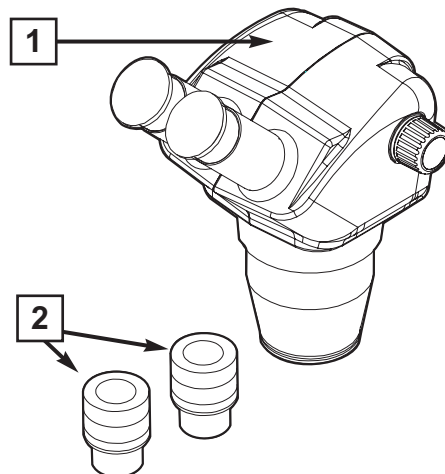
SERVICE RECORD

Head serial number
Bench stand serial number
Service record

WARRANTY

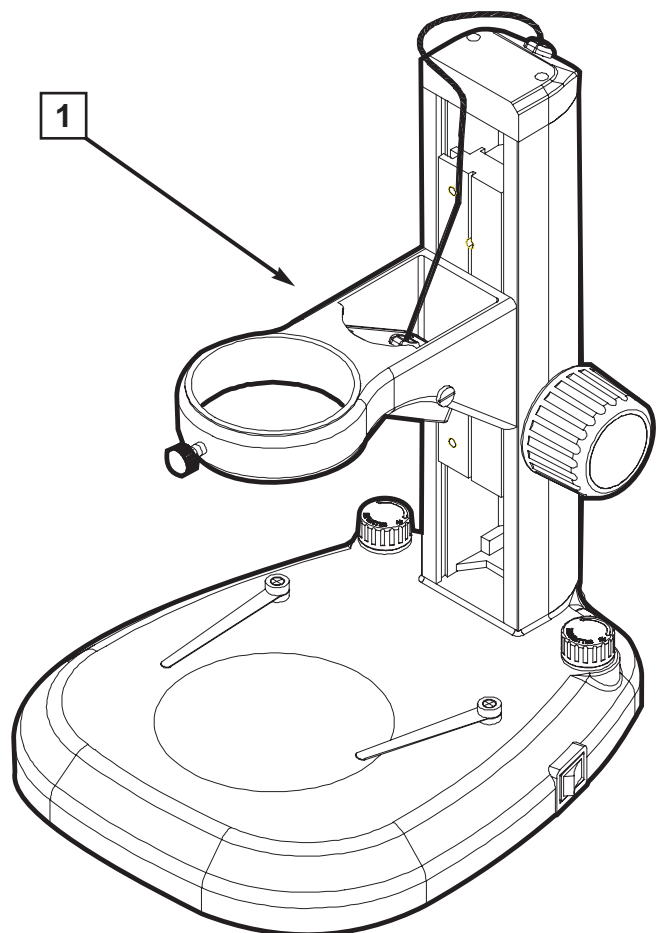
Binocular/Trinocular head

- 1** Head
- 2** Eyepieces



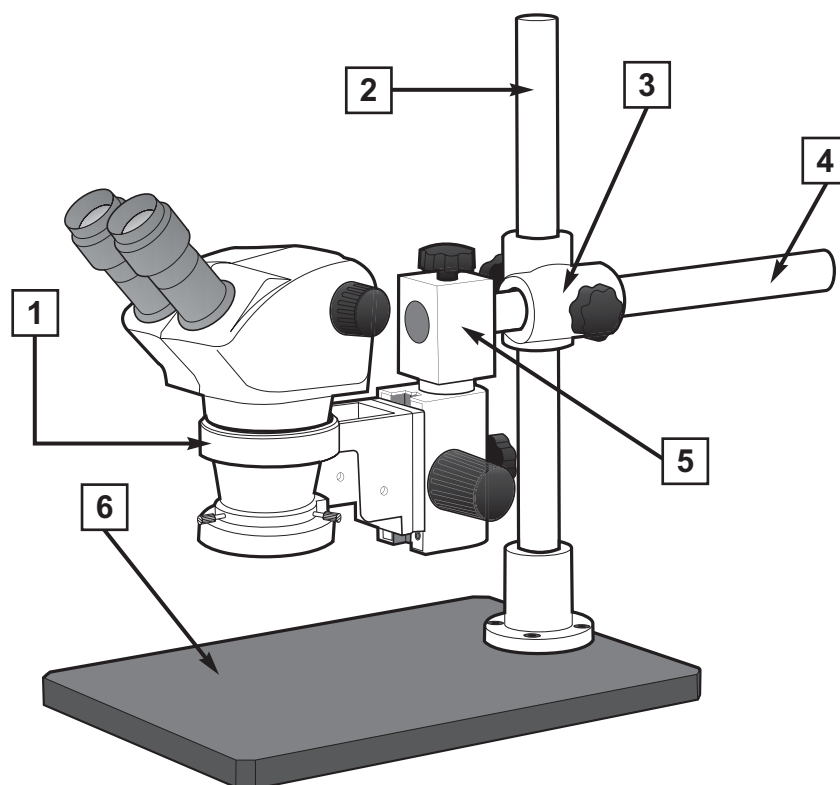
Bench stand

- 1** Column & stand
- 2** Mains lead (not shown)
- 3** Glass stage insert (not shown)
- 4** Plastic stage insert (not shown)
- 5** Spare fuses (not shown)
- 6** Hexagonal key (not shown)



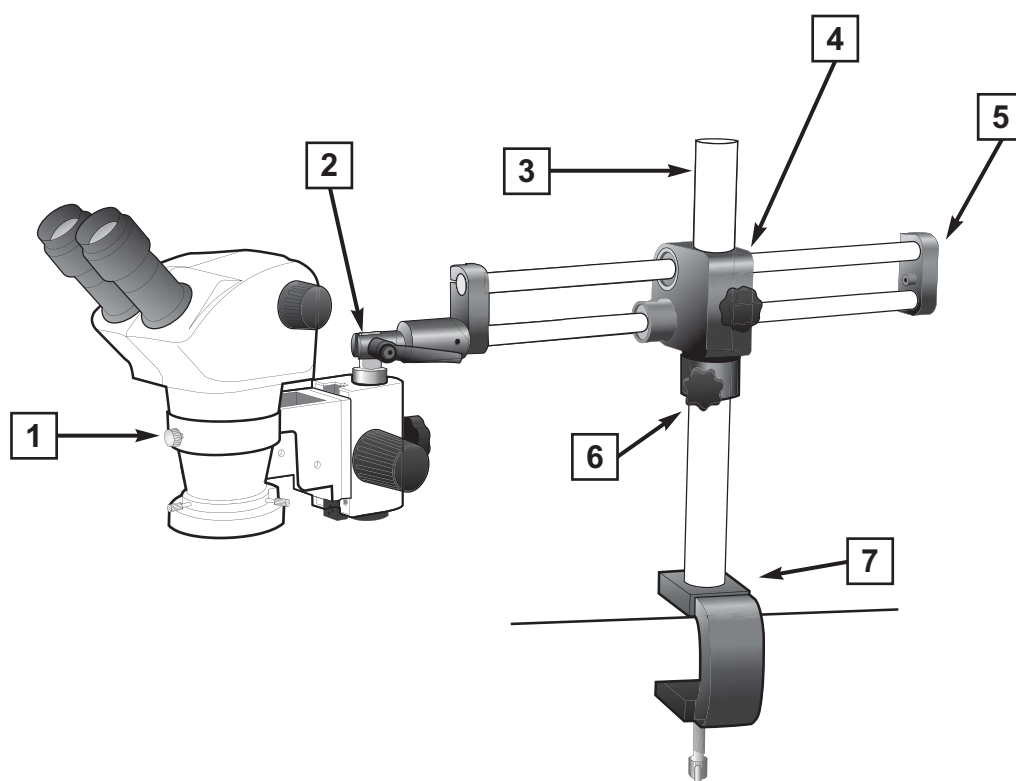
Boom stand

- 1** Focusing arm
- 2** Vertical bar
- 3** Boom clamp
- 4** Horizontal bar
- 5** Focusing clamp bolt
- 6** Base
- 7** Hexagonal key (not shown)



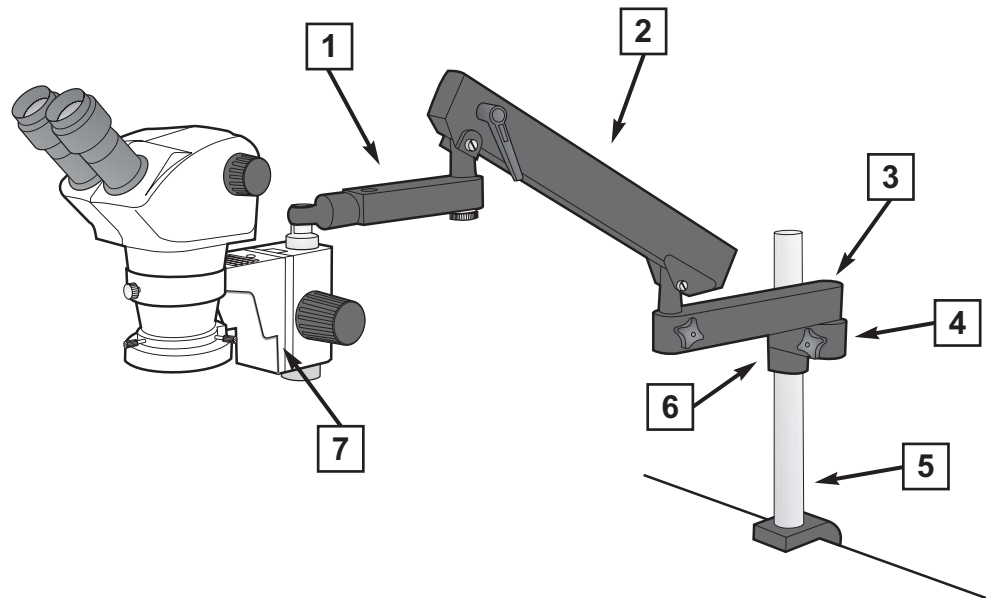
Dual-arm boom stand

- 1** Focusing arm
- 2** Focusing clamp bolt
- 3** Vertical bar
- 4** Boom clamp
- 5** Dual horizontal bar
- 6** Securing collar
- 7** Clamp



Articulated arm

- 1** Focus arm link
- 2** Ergonomic beam
- 3** Secondary link
- 4** Link collar
- 5** Bench mount
- 6** Securing collar
- 7** Focusing arm



Optional accessories

0.5x C-mount adaptor

C-mount camera adaptor

T-mount camera adaptor

20x/13 Eyepieces

Eye cups

Graticule

Objective 0.5x

Objective 2.0x

Polarisation kit

Stage micrometer

Floating stage

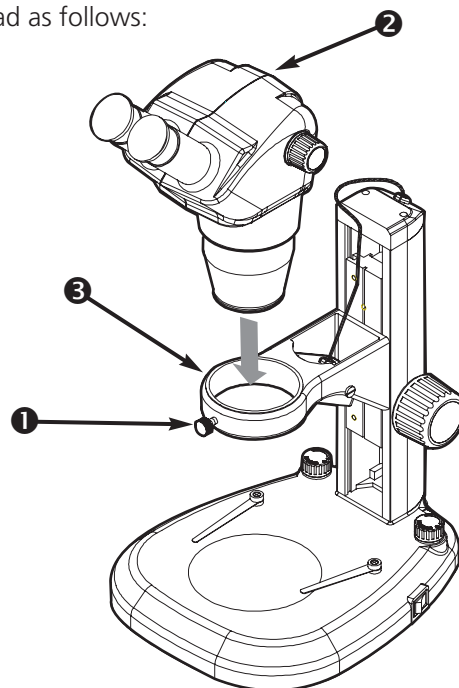
LED Ringlight

Head (Binocular/Trinocular)

Ensuring all components are clean and dust-free, attach the binocular head as follows:

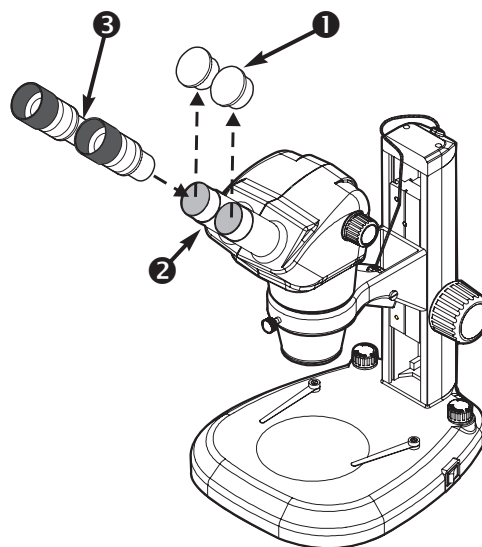
- ▶ Loosen the securing screw ❶.
- ▶ Lower the head ❷ into the location ring ❸.
- ▶ Tighten the securing screw ❶.

Warning: With the head in place, always support the column and base when moving the instrument.



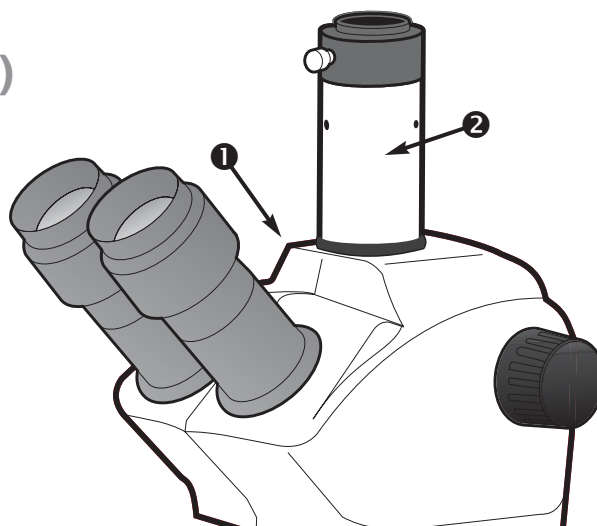
Eyepiece attachment

- ▶ Remove the protective caps ❶ from the eyepiece sockets ❷.
- ▶ Insert the eyepieces ❸ into the sockets.



Camera attachment (Trinocular head)

- ▶ Remove the cap from the top of the Trinocular head ❶.
- ▶ Screw on the camera adaptor ❷.

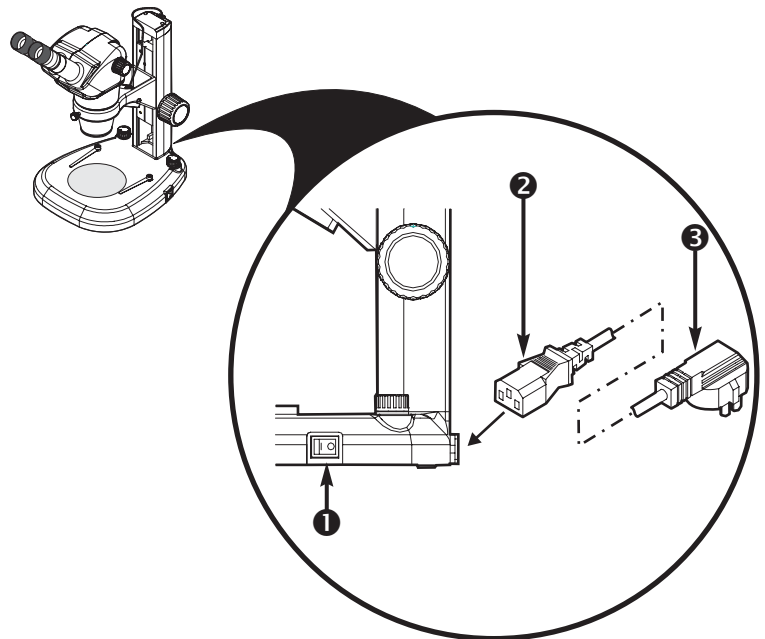


Bench stand

Place the bench stand on a flat and even surface in a clean and dry environment.

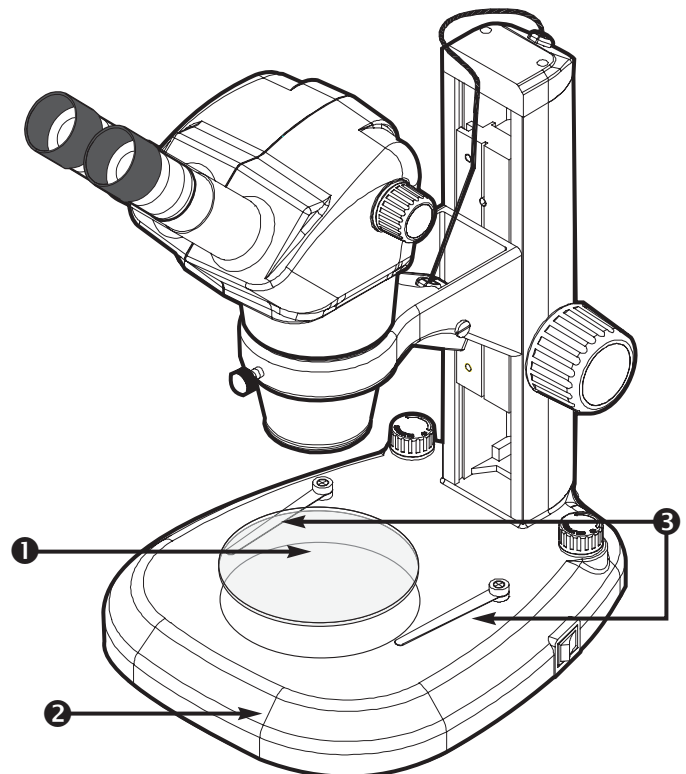
Power lead connection

- ▶ Turn the power switch ❶ to the Off (0) position.
- ▶ Plug the IEC connector ❷ into the rear of the SX45 stand.
- ▶ Connect the mains plug ❸ to a suitable mains power socket.



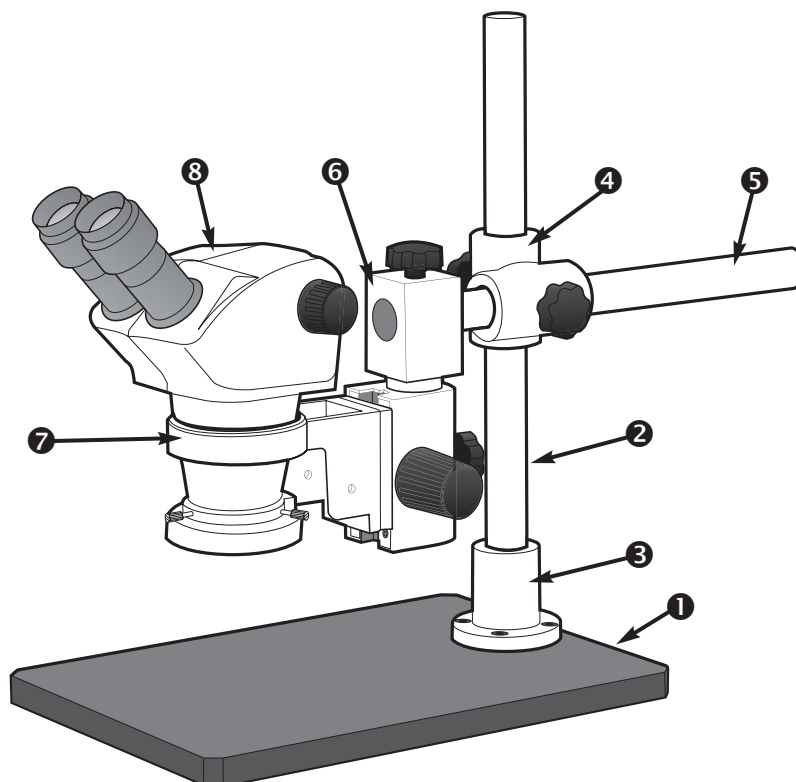
Stage glass attachment

- ▶ Place the stage glass ❶ into the stand base ❷.
- ▶ Use the two clamps ❸ to secure specimens when in use.

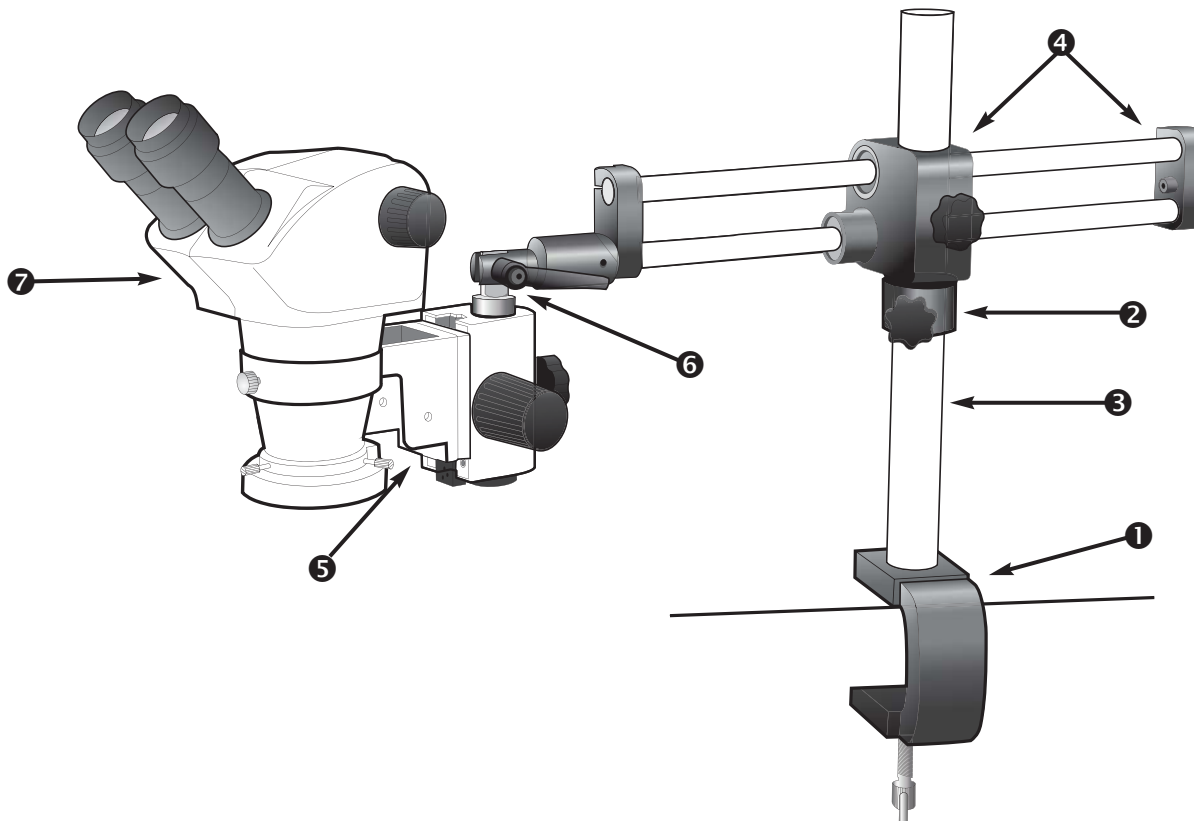


Boom stand

- ▶ Place base **1** on a flat and even surface.
- ▶ Insert the vertical bar **2** into support **3** and tighten screws.
- ▶ Slide clamp **4** over the vertical bar **3** and secure.
- ▶ Slide horizontal bar **5** through the clamp **4** and secure.
- ▶ Attach the focusing arm mount **6** to the horizontal bar **5** and secure.
- ▶ Attach the focusing arm **7** to focusing arm mount **6** and secure.
- ▶ Position and secure head **8**.

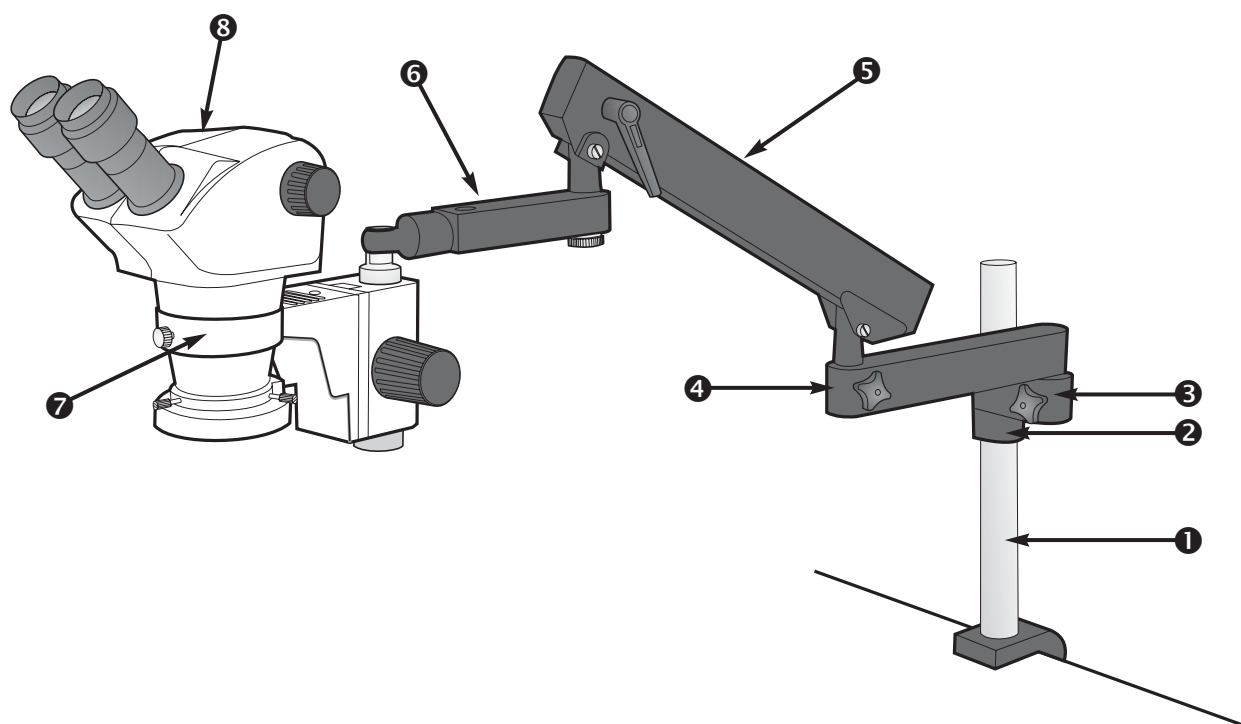


Dual-arm boom stand



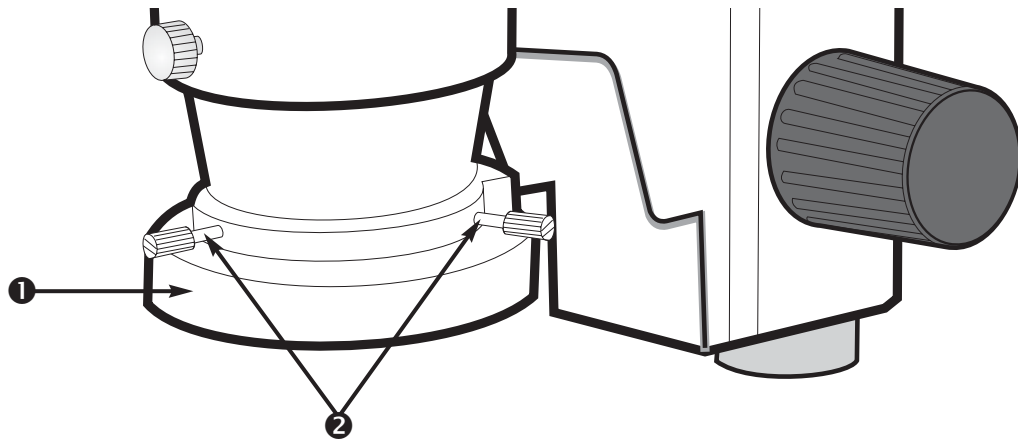
- ▶ Secure bench mount ❶ to work surface using clamp.
- ▶ Slide the securing collar ❷ over the vertical bar ❸ and secure.
- ▶ Slide dual-arm & clamp assembly ❹ over the vertical bar ❸ and secure.
- ▶ Connect focus assembly ❺ to the focus arm link ❻ and tighten the screw at the back and the nut at the bottom until secure.
- ▶ Insert head ❼ into the focus assembly ❺ and secure.

Articulated arm



- ▶ Secure bench mount **1** to work surface using clamp.
- ▶ Slide the securing collar **2** over the mount **1** and secure.
- ▶ Slide the link collar **3** over the mount **1** and secure.
- ▶ Insert secondary link **4** into the link collar **3** and secure.
- ▶ Insert the ergonomic beam **5** into the secondary link **4** and secure.
- ▶ Attach the focus arm link **6** to the ergonomic beam **5** and secure.
- ▶ Connect focusing arm **7** to the focus arm link **6** and tighten the screw at the back and the nut at the bottom until secure.
- ▶ Insert head **8** into the focusing arm **7** and secure.

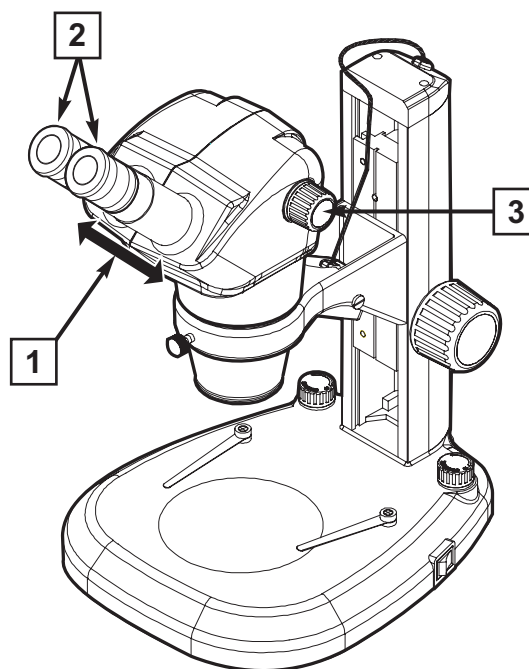
LED ringlight (optional)



- ▶ Slide the LED ringlight ❶ over the bottom of the head of the microscope.
- ▶ Secure with screws ❷.
- ▶ Connect power lead, and plug in.

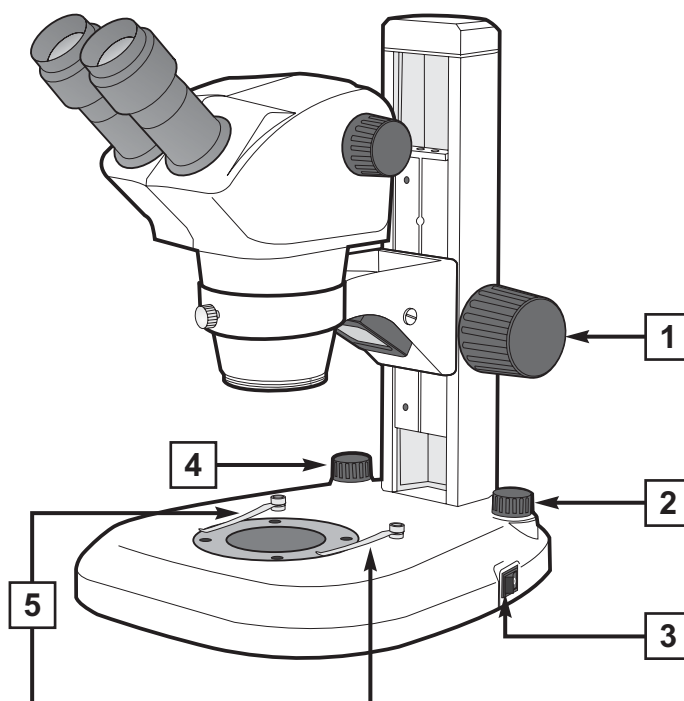
Binocular/Trinocular head

- 1** Interpupillary adjustment
- 2** Diopter adjustment
- 3** Zoom controls (one each side)



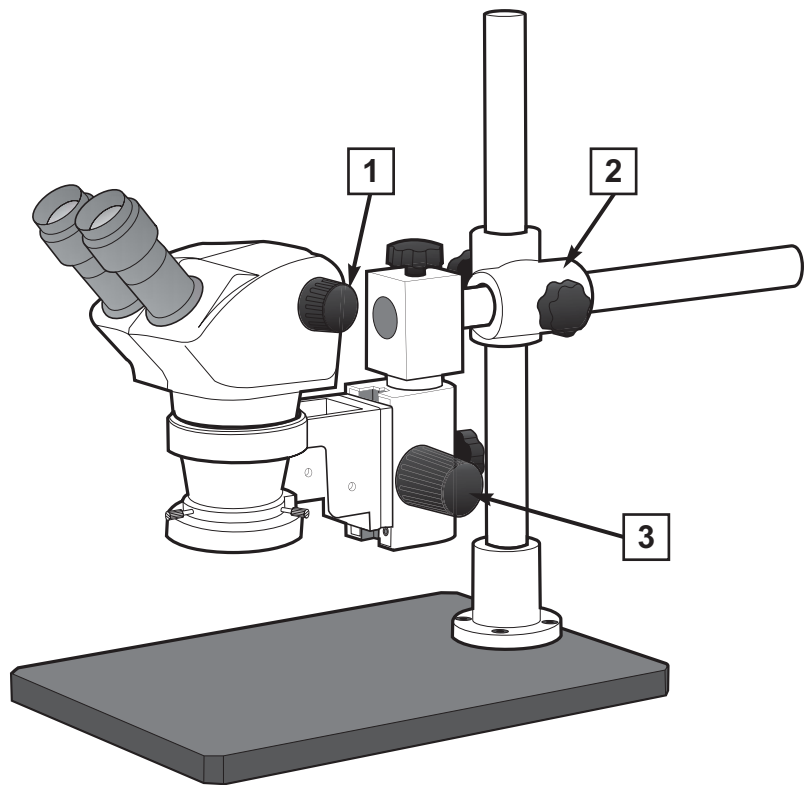
Bench stand

- 1** Focus controls (one each side)
- 2** Reflected illumination control
- 3** On/Off switch
- 4** Transmitted illumination control
- 5** Specimen clamps



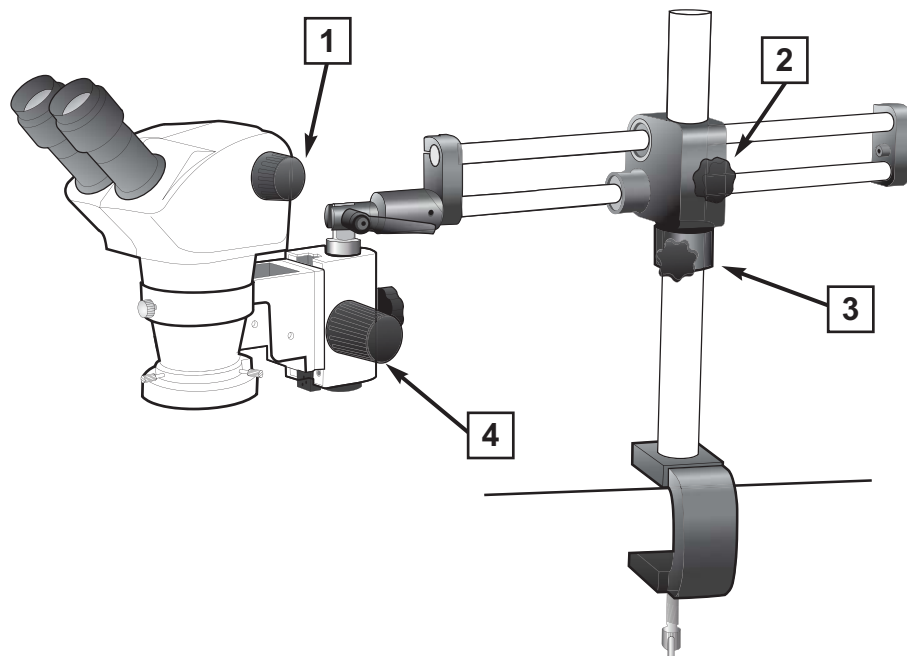
Boom stand

- 1** Zoom
- 2** Height/reach adjustment
- 3** Focus

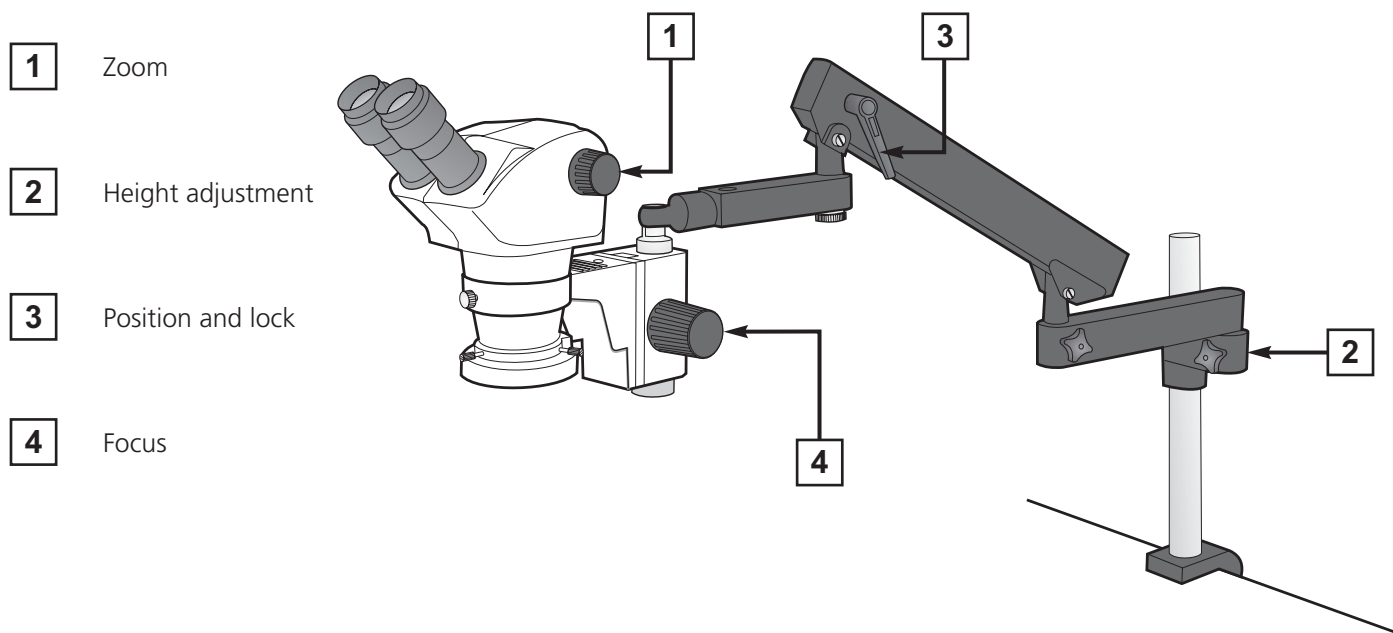


Dual-arm boom stand

- 1** Zoom
- 2** Height adjustment
- 3** Height lock
- 4** Focus

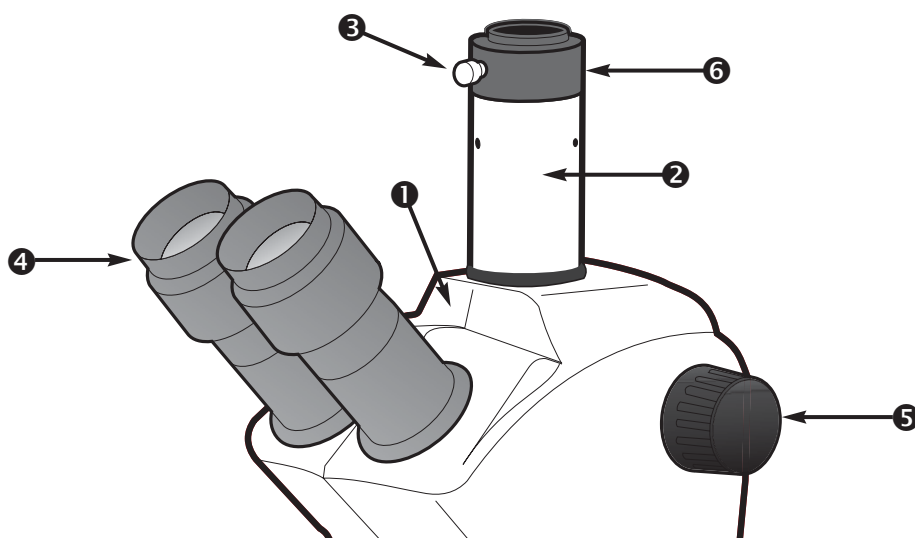


Articulated arm



Camera focusing (Trinocular head only)

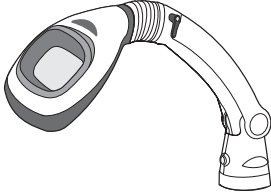
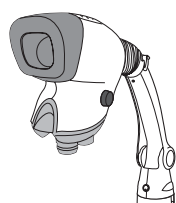
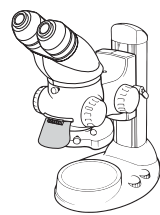
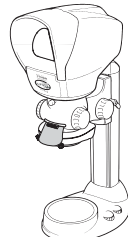
- ▶ Screw the camera adaptor ② onto the top of the head ①.
- ▶ Loosen screw ③ on the top of the camera adaptor and set to the lowest position.
- ▶ Attach the camera to the adaptor.
- ▶ Zero the diopters ④ and focus the specimen.
- ▶ Set the zoom ⑤ to minimum, and adjust diopters.
- ▶ Gently slide up the camera adaptor focus ⑥ until image is clear, at that point tighten the securing screw ③ to hold in position.



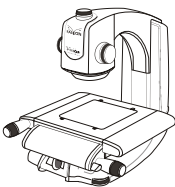
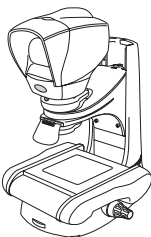
OTHER SOLUTIONS FROM VISION ENGINEERING

Vision engineering manufactures a wide range of stereo inspection and non-contact measuring systems. For all product information, please visit our website.

Stereo inspection systems

Product	Picture	Features	Description
Lentis		▪ 2.5 diopters ▪ Multi-layered anti-reflective coated lens	A state of the art bench magnifier for inspection and material rework.
Mantis		▪ x2 – x20 magnification ▪ Shadow-free LED cold illumination, both surface and substage ▪ Long working distance, large depth of field	The Mantis family is a unique range of optical systems without eyepieces, for intricate tasks requiring superb quality viewing over long periods of use. Available with the universal arm or rigid bench stand option.
Alpha		▪ x 2.1 - x160 magnification ▪ Camera option ▪ Expanded pupil eyepieces	Expanded pupil eyepieces stereo zoom microscope. Available in boom and bench stand configuration with a wide range of optional accessories (e.g, lighting cameras).
Beta		▪ x2.1 – x160 magnification ▪ Camera option ▪ Conventional eyepieces	Conventional eyepiece stereo zoom microscope Available in boom and bench stand configuration with a wide rang of optional accessories (e.g. lighting and cameras).
Lynx		▪ x3.5 – x120 magnification ▪ Camera option ▪ Eyepieceless viewing system	Advanced eyepieceless stereo zoom microscope. Available in bench and rigid boom stand configuration with a wide range of optional accessories (e.g. lighting, cameras)

Non-contact measuring systems

Product	Picture	Features	Description
Kestrel		150mm x 100mm stage - QC-200 Microprocessor - Eyepieceless viewing system - Video Edge Detection option	Entry level, 2-axis measuring system. Ideal for shop floor gauging applications.
Falcon		150mm x 150mm stage - x10 - x100 zoom magnification - QC-300 or QC-5000 processor - Motorised CNC option	3-axis video measuring system with touch screen video processor. Powerful yet simple to use, ideal for a wide range of precision measuring applications.
Hawk Manual		150mm x 150mm stage - Large stage option - Eyepieceless viewing system - Video Edge Detection option	Advanced 3-axis manual measuring system offering increased accuracy and capacity. Operates with QC-200 and QC-300 microprocessors.
Hawk Precision		200mm x 150mm stage - Eyepieceless viewing system - Video Edge Detection option	High accuracy measuring system for 3 axis measurement. Operates with QC-200 and QC-300 microprocessors or QC-5000 PC software.
Hawk Automatic		200mm x 150mm stage - Video Edge Detection option - Motorised CNC automation	Automatic measuring system combining optical viewing head with PC based Video Edge Detection. 3 axis motorised stage movement controlled by QC-5000 PC software.

Head serial number _____

Bench stand serial number _____

Service Type	Comments	Date of service	Date of next service	Company	Signature



WARRANTY

This product is warranted to be free from defects in material and workmanship for a period of one year from the date of invoice to the original purchaser.

If during the warranty period the product is found to be defective, it will be repaired or replaced at facilities of Vision Engineering or elsewhere, all at the option of Vision Engineering. Shipment costs for warranty repairs, to and from Vision Engineering facilities will not, normally, be borne by Vision Engineering. However, Vision Engineering reserves the right to refund the purchase price if it is unable to provide replacement, and repair is not commercially practicable or cannot be timely made. Parts not of Vision Engineering manufacture carry only the warranty of their manufacturer. Expendable components such as fuses carry no warranty.

This warranty does not cover damage in transit, damage caused by misuse, neglect, carelessness or damage resulting from either improper servicing or modification by other than Vision Engineering approved service personnel. Further, this warranty does not cover any routine maintenance work on the product described in the user guide or any minor maintenance work which is reasonably expected to be performed by the purchaser.

No responsibility is assumed for unsatisfactory operating performance due to environmental conditions such as humidity, dust, corrosive chemicals, deposition of oil or other foreign matter, spillage or other conditions beyond the control of Vision Engineering.

Except as stated herein, Vision Engineering makes no other warranties, expressed or implied by law, whether for resale, fitness for a particular purpose or otherwise. Further, Vision Engineering shall not under any circumstances be liable for incidental, consequential or other damages.

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