# Loupe Binoculaire

## POINTS ESSENTIELS

- Têtes binoculaires avec oculaires WF 10x/22 mm
- Grossissement 7x45x zoom continu de rapport 1:6.5 garantissant une observation fluide et détaillée
- Tube d'observation : Jumelle à charnière, incliné à 45° espacement des pupilles ajustable de 55à 75mm - Tête rotative 360°
- Réglage dioptrique : Jumelles plage ajustable +/-6 pour une adaptation parfaite à la vision de chaque utilisateur
- Diamètre du champ : 4.6mm + 31.5mm
- Statifs conceptions ergonomiques hauteur 6.3mm x largeur 300mm
- Eclairage à LED de 3 W luminosité réglable
- Grande distance de travail: 30x165mm selon lentilles
-

**Code Loupe 16-0180**
**Code Table opération 10-2101**

## CAR AC T ÉRIS TIQUES TECHNIQUES

### OCUL AIRES

Référence 16-0180 standard est dotée d'une paire d'oculaires WF 10x/22 mm.

### TÊ TES

Têtes binoculaires avec tubes inclinés à 45°. Le deux oculaires ont un réglage de la dioptrie de ± 6 . Distance interpupillaire réglable de 55 mm à 75 mm.

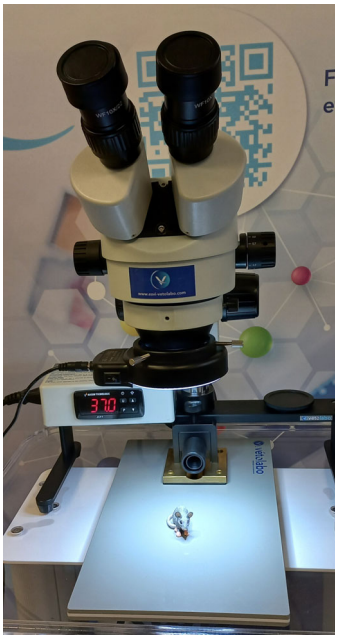
### OBJEC TIFS

Objectif zoom plan achromatique de 1:6,5 avec des grossissements de 0,7x à 4,5x.

Champ de vision de 31.5 mm à 4,6 mm. Plage de levage 40x185mm

**Un Statif Surélevé pour un Confort et une Polyvalence Accrus**
L'un des principaux atouts de cette loupe binoculaire est son statif surélevé, permettant d'installer une table d'opération ou un tapis chauffant sous l'appareil.
Cette conception innovante facilite les manipulations dans un cadre professionnel exigeant, garantissant une meilleure ergonomie et un accès optimal à l'observation.

**Installation d'un tapis chauffant et d'un masque d'anesthésie.**



**Code Tapis VL3 180X320mm**

# Loupe binoculaire, offre un grossissement de x10 et un champ de vision de 22 mm

## Référence VET16-0180

Un objectif auxiliaire 0,5x est monté sur l'objectif qui est amovible permettant d'obtenir une distance de travail de 165mm.

Pour les travaux à une distance de travail de 100 mm, nous vous recommandons de retirer l'objectif auxiliaire.

- L'objectif auxiliaire a une monture filetée - il suffit de le dévisser de l'objectif.
- Pour clarifier pourquoi l'objectif auxiliaire 0,5x doit être retiré à une distance de travail de 100 mm, voici ci-dessous les comparaisons des performances :
- Objectif auxiliaire natif 10X vs 10X + 0,5X (objectif auxiliaire)

| Paramètre | Objectif 10X natif (sans objectif auxiliaire) | Objectif auxiliaire 10X + 0,5X |
|---|---|---|
| **Distance de travail (WD)** | 100 mm (fixe) | 168 mm (nécessite un réglage à 100 mm) |
| **Grossissement total** | 10X (100X avec oculaires 10X) | 5X (50X avec oculaires 10X) |
| **Résolution** | Plus élevé (pas d'aberrations de l'objectif auxiliaire) | Potentiellement réduit |
| **Champ de vision (FOV)** | Petite | Plus grand (couverture plus large à faible mag) |
| **Cas d'utilisation recommandés** | Microscopie à haute résolution (p. ex., échantillons biologiques) | Balayage ou manipulation de grands échantillons |

**Configurations intégrables sous statif :**

- Table de chirurgie.
- Tapis chauffant.
- Masque d'anesthésie.
- Station d'éclairage.
- Autres accessoires personnalisés.

Ces éléments sont parfaitement intégrés dans le champ visuel de la base, garantissant une utilisation fluide et ergonomique. Les réglages précis de la focale et de la luminosité du microscope optimisent l'espace tout en offrant une flexibilité maximale pour les applications scientifiques.

E.S.V.I. vétolabo

PARTENAIRE DE VOS RECHERCHES

# SM 710 Series Universal Surgical Microscope
# User Manual
# V 1.0

# 1. Precautions

## 1-1 Operation

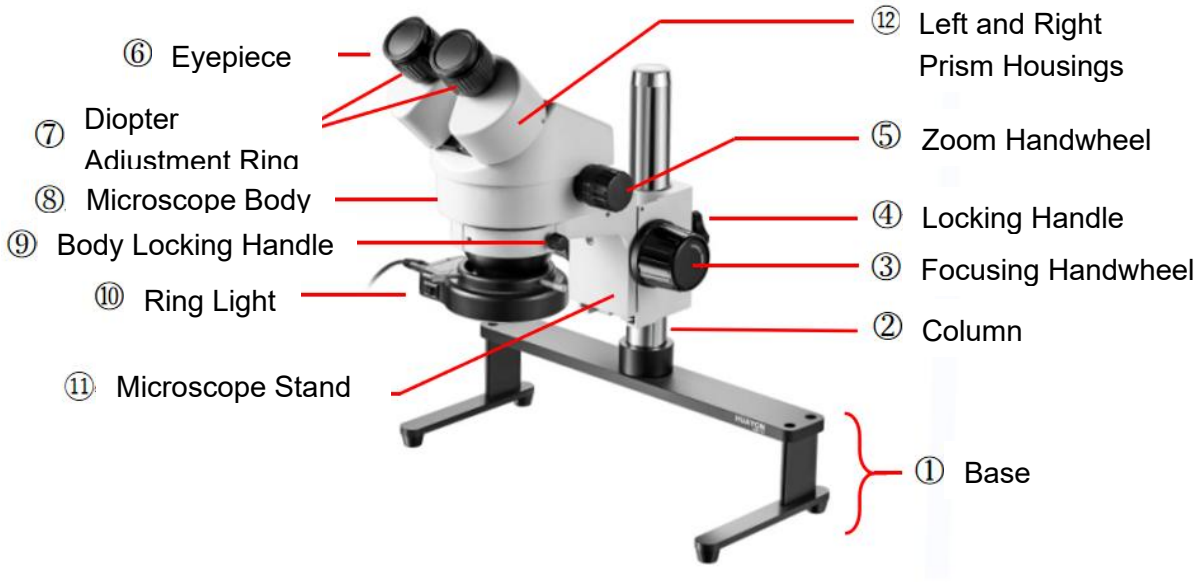
(1) Do not expose components directly to sunlight. Place them in a dry, clean environment, avoiding high temperatures and severe vibrations.
(2) The microscope is a precision instrument. Handle it with care and avoid impacts and collisions during transportation.
(3) To avoid affecting image clarity, prevent dirt or fingerprints from remaining on the lens surface.
(4) Do not rotate the left and right zoom handwheels in the opposite direction, as this may cause malfunctions.
(5) Be careful when installing or removing lenses to prevent them from falling.

## 1-2 Maintenance and care

(1) Keep all lenses clean. If there is fine dust, use a blower or gently wipe with cotton gauze. If there are oil stains or fingerprints, gently wipe with cotton gauze dipped in a 3:7 mixture of ethanol and ether.
(2) Do not use organic solvents to clean other surfaces of the microscope, especially plastic surfaces. Use neutral detergents for cleaning.
(3) Do not disassemble the microscope yourself, as this may affect its performance.
(4) When not in use, cover the microscope with a dust cover to prevent contact with dust. Store it in a moisture-free place to avoid rust or mold.
(5) To maintain the microscope's performance, regular inspections are recommended (details can be discussed with your nearest agent).

# 2. Component Names

## 2-1 Component Overview

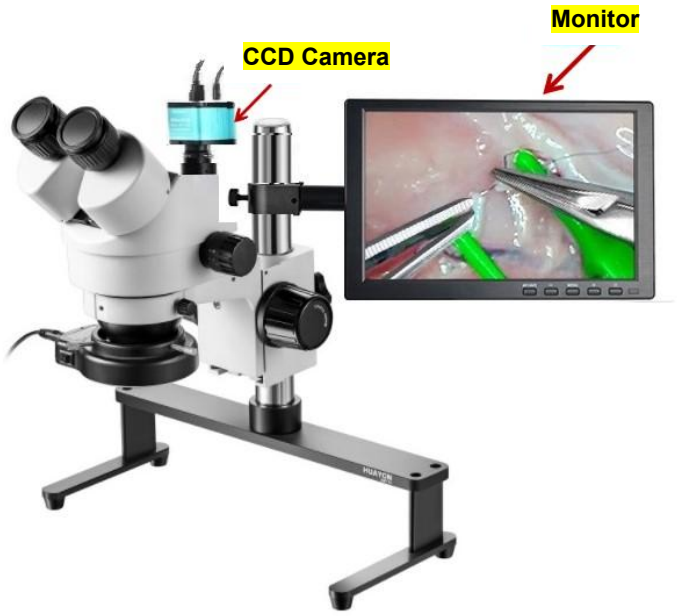



### 3-3 Installing the CCD Camera and Monitor (Optional)

**Special Note: This step applies only to trinocular microscopes, which have a CCD Camera Interface on the microscope body, as shown below;**


**Trinocular microscope**

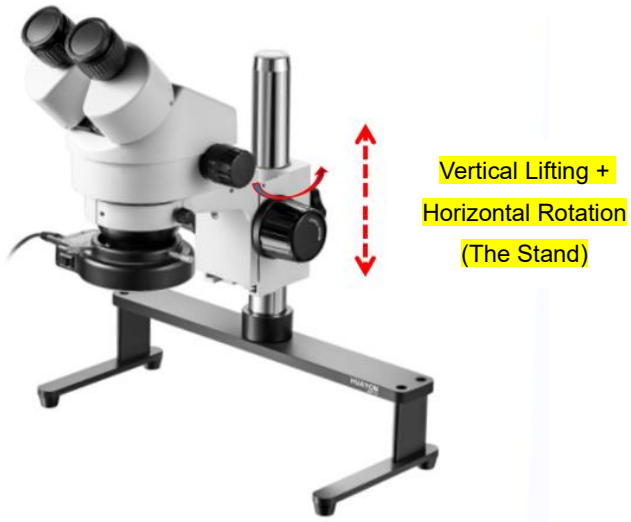
**Trinocular microscopes with a CCD camera interface can be equipped with a camera and/or monitor, allowing real-time viewing, image capture, and video recording, as shown below.**




# 4 Operation

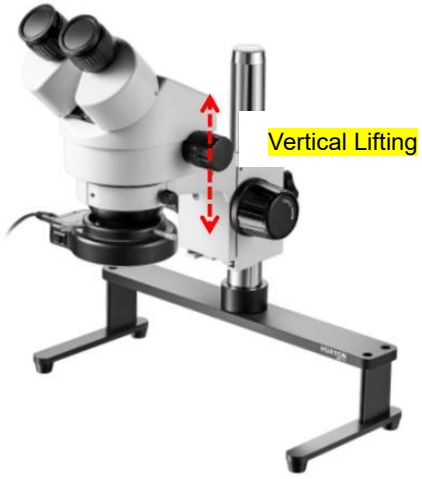
### 4- 1 Using the Lifting and Rotating Functions

Loosen the ④ Locking Handle to allow the microscope stand (body) to move up and down (coarse adjustment) and rotate 360° horizontally, as shown below;

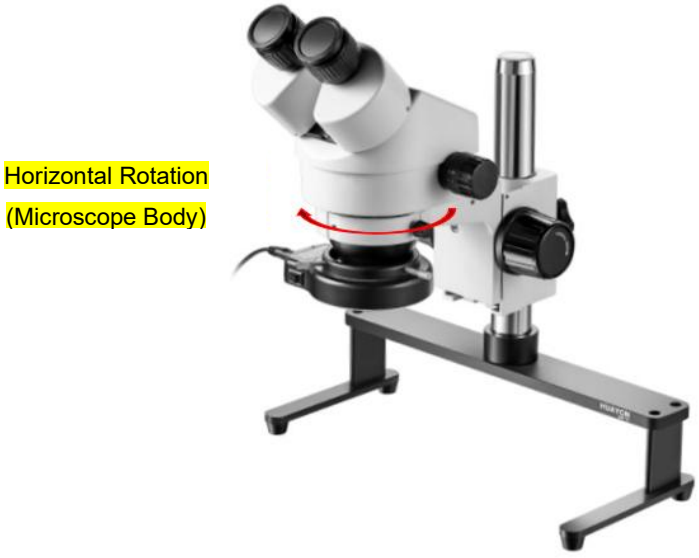


Rotate the ③ Focusing Fand-wheel to move the microscope stand (body) up and down (fine adjustment), adjusting the working distance between the objective lens and the observed object for optimal clarity. As shown below;

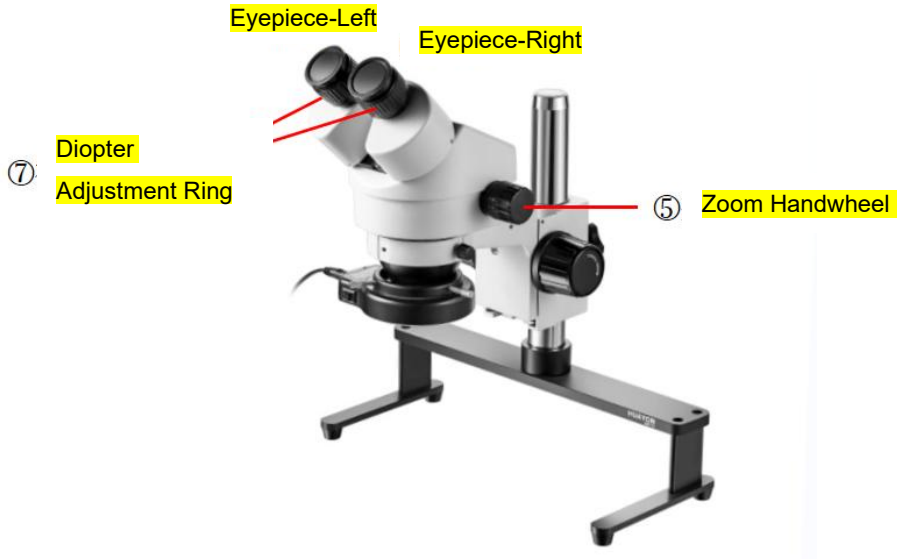
[Special Note: (1) To adjust the tightness of the focusing mechanism, hold one handwheel and rotate the other. Tightness depends on the rotation direction: clockwise tightens, counterclockwise loosens. (2) Adjusting the tightness of the focusing mechanism prevents the microscope body from sliding down during observation and makes focusing more comfortable.]




Loosen the ⑨ Body Locking Handle to allow the microscope body to rotate 360°, as shown below;



## 4- 2 Diopter Adjustment and Focusing




Step 1: Rotate the zoom handwheel to maximum magnification.
Step 2: Rotate the right diopter adjustment ring to the 0 mark.
Step 3: Observe through the right eyepiece. If the image is unclear, rotate the focusing handwheel to clarify the specimen image.
Step 4: Rotate the zoom handwheel to minimum magnification.
Step 5: Observe through the right eyepiece. If the image is unclear, rotate the right diopter adjustment ring ② to clarify the specimen.
Step 6: Rotate the zoom handwheel back to maximum magnification. Observe through the right eyepiece. If the image is unclear, repeat steps 3 to 5 for more precise diopter adjustment.
Step 7: Rotate the zoom handwheel to minimum magnification. Observe through the left eyepiece. If the image is unclear, rotate the left diopter adjustment ring to clarify the image.

## 4-3 Interpupillary Distance Adjustment

Hold the left and right prism housings (as shown below) and rotate them in the direction of the arrows until comfortable for binocular observation.

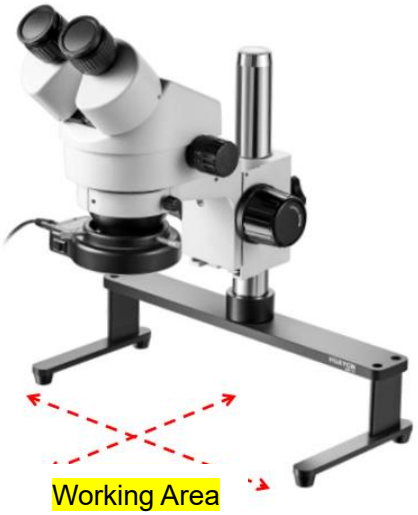
Interpupillary Distance Adjustment

### 4- 4 Using the Eyecups

1. For those without glasses, hold the diopter adjustment ring to prevent rotation. Rotate the eyepiece to ensure the eyecup fits well with the observer's eye.
2. For those with glasses, remove the eyecup before observation.

### 4- 5 Working Area

The area inside the base (below the microscope body) is the working area. You can place the observed object directly here or use a surgical table, as shown below;



Working Area

# 5 Technical Specifications

| Eyepiece | Standard Configuration | | Additional Objective Lens | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | 0.5X | | 1.5X | | 2X | |
| | Working Distance 100mm | | Working Distance 165mm | | Working Distance 45mm | | Working Distance 30mm | |
| | Magnification | Field of View | Magnification | Field of View | Magnification | Field of View | Magnification | Field of View |
| 10X/20 | 7X | 28.6 | 3.5X | 57.1 | 10.5X | 19 | 14X | 14.3 |
| | 45X | 4.4 | 22.5X | 8.9 | 67.5X | 3 | 90X | 2.2 |
| 15X/15 | 10.5X | 21.4 | 5.25X | 42.8 | 15.75X | 14.3 | 21X | 10.7 |
| | 67.5X | 3.3 | 33.75X | 6.7 | 101.25X | 2.2 | 135X | 1.7 |
| 20X/10 | 14X | 14.3 | 7X | 28.6 | 21X | 9.5 | 28X | 7.1 |
| | 90X | 2.2 | 45X | 4.4 | 135X | 1.5 | 180X | 1.1 |

Notes:

1. The working distance is fixed and does not change with magnification.
2. When using an auxiliary objective lens,
the total magnification = objective magnification × eyepiece magnification × auxiliary objective magnification.

$$\text{Field of View (mm)} = \frac{\text{Eyepiece Field of View}}{\text{Objective Magnification} \times \text{Auxiliary Objective Magnification}}$$

# 6. Troubleshooting

If the microscope's performance is not fully utilized due to unfamiliarity, the following table provides some solutions.

| Issue | Cause | Solution |
|---|---|---|
| 1. Double images not aligned | Incorrect interpupillary distance adjustment | Adjust the interpupillary distance |
| | Incorrect diopter adjustment | Re-adjust the diopter |
| | Different magnifications in left and right eyepieces | Install identical eyepieces |
| 2. Dirt in the field of view | Dirt on the specimen | Clean the specimen |
| | Dirt on the eyepiece surface | Clean the eyepiece |

| | | |
|---|---|---|
| 3. Blurry image | Dirt on the objective lens surface | Clean the objective lens |
| 4. Blurry image during zoom | Incorrect diopter adjustment | Re-adjust the diopter |
| | Incorrect focusing | Re-focus |
| 5. Focusing handwheel not smooth | Focusing handwheel too tight | Loosen appropriately |
| 6. Microscope body slides down during observation, causing blurry images | Focusing handwheel too loose | Tighten appropriately |
| 7. Cut-off in the field of view during observation or photography | Pull rod not fully extended | Extend the pull rod fully |
| 8. Blurry image on the video monitor during zoom | Incorrect camera focus adjustment | Re-adjust the camera focus using the focus ring on the camera adapter |
| 9. Eye strain | Incorrect diopter adjustment | Adjust the diopter correctly |
| | Unsuitable lighting brightness | Adjust the light intensity knob |