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Insize ISM-M2000

INSIZE ISM-M2000 Metallurgical Microscope User Manual

Model: ISM-M2000

1. INTRODUCTION

The INSIZE ISM-M2000 Metallurgical Microscope is a precision instrument designed for high magnification observation and detailed metallurgical image analysis. This manual provides comprehensive instructions for the proper setup, operation, and maintenance of your microscope to ensure optimal performance and longevity.



Figure 1: Overview of the INSIZE ISM-M2000 Metallurgical Microscope. This image shows the complete microscope unit, including the binocular head, objective turret, mechanical stage, and external power supply unit.

2. KEY FEATURES

- **Eyepiece:** Wide field 10X eyepiece with a view field of 87 inches.
- **Stage:** Double-layer mechanical stage, size 6.30×5.51 inches, with a travel range of 2.95×1.97 inches (0.1mm/.004 inches precision).
- **Illumination:** 12V/50W halogen lamp for bright and consistent lighting.
- **Filters:** Built-in green, yellow, blue, gray, and frosted glass filters for enhanced contrast and observation.
- **Pupil Distance:** Adjustable interpupillary distance from 1.89 to 2.95 inches for comfortable viewing.
- **Application:** Optimized for high magnification observation and metallurgical image analysis.

3. SETUP GUIDE

1. **Unpacking:** Carefully remove all components from the packaging. Retain the original packaging for future transport or storage.
2. **Placement:** Place the microscope on a stable, level surface, away from direct sunlight, vibrations, and excessive dust. Ensure adequate space around the unit for operation and ventilation.
3. **Eyepiece Installation:** Insert the 10X wide field eyepieces into the binocular tubes. Gently push them down until they are seated firmly.
4. **Power Connection:** Connect the power cord from the microscope's illumination unit to a suitable power outlet (12V/50W halogen lamp). Ensure the power switch is in the "OFF" position before connecting.
5. **Initial Inspection:** Before powering on, visually inspect all components to ensure they are securely attached and free from damage.

4. OPERATING INSTRUCTIONS

1. **Power On:** Turn on the main power switch located on the illumination unit. Adjust the brightness control knob to a comfortable level.
2. **Sample Placement:** Place the metallurgical sample securely on the double-layer mechanical stage. Use the stage clips to hold it in place if necessary.
3. **Objective Selection:** Rotate the revolving nosepiece to select the desired objective lens. Start with the lowest magnification objective for initial focusing.
4. **Focusing:**
 - Use the **coarse focus knob** (larger knob) to bring the sample into approximate focus.
 - Use the **fine focus knob** (smaller knob) for precise focusing and to achieve a sharp image.
5. **Stage Movement:** Use the X-Y control knobs on the mechanical stage to move the sample horizontally and vertically across the field of view.
6. **Interpupillary Distance Adjustment:** While looking through the eyepieces, adjust the distance between the two eyepiece tubes until you see a single, clear circular field of view.
7. **Diopter Adjustment:** If one eye is clearer than the other, adjust the diopter ring on one of the eyepieces until both eyes perceive a sharp image.
8. **Filter Usage:** Utilize the built-in green, yellow, blue, gray, or frosted glass filters by sliding them into position to enhance contrast or reduce glare for specific sample types.
9. **Power Off:** After use, turn off the illumination and then the main power switch.

5. MAINTENANCE

- **Cleaning Optics:** Use a soft, lint-free cloth specifically designed for optical lenses to clean eyepieces and objectives. For stubborn smudges, a small amount of lens cleaning solution can be applied to the cloth, not directly to the lens.
- **General Cleaning:** Wipe the microscope body with a soft, dry cloth. Avoid using harsh chemicals or abrasive cleaners.
- **Dust Protection:** Always cover the microscope with a dust cover when not in use to prevent dust accumulation on optical and mechanical parts.
- **Storage:** Store the microscope in a cool, dry place, away from extreme temperatures and humidity.
- **Lamp Replacement:** If the halogen lamp burns out, ensure the microscope is unplugged and cool before carefully replacing it with a new 12V/50W halogen lamp. Refer to the lamp housing for specific replacement instructions.

6. TROUBLESHOOTING

Problem	Possible Cause	Solution
No illumination	Power cord unplugged, lamp burnt out, power switch off.	Check power connection, replace lamp, turn on power switch.
Image blurry/out of focus	Incorrect focus adjustment, dirty objective/eyepiece, sample not flat.	Adjust fine focus, clean optics, ensure sample is flat on stage.
Dark spots in field of view	Dust on eyepiece or objective lens.	Clean eyepieces and objectives.
Difficulty moving stage	Stage mechanism dirty or damaged.	Clean stage, do not force movement. Contact support if persistent.

7. SPECIFICATIONS

Parameter	Value
Manufacturer	INSIZE
Model Number	ISM-M2000
Eyepiece	10X (wide field, view field 87 inch)
Stage Type	Double layer mechanical stage
Stage Size	6.30 × 5.51 inches
Stage Travel	2.95 × 1.97 inches (0.1mm/.004 inches)
Illumination	12V/50W Halogen lamp
Built-in Filters	Green, Yellow, Blue, Gray, Frosted Glass
Pupil Distance	1.89 ~ 2.95 inches

Parameter	Value
Maximum Magnification	10x (Note: This refers to eyepiece magnification, total magnification depends on objectives)
Item Weight	12 Kilograms
Package Dimensions	64.69 x 37.59 x 26.8 cm

8. WARRANTY AND SUPPORT

Specific warranty information for the INSIZE ISM-M2000 Metallurgical Microscope is typically provided at the point of purchase or within separate documentation included with the product. Please refer to your purchase receipt or contact your vendor for details regarding warranty coverage.

For technical support, service, or inquiries about replacement parts, please contact INSIZE customer service or your authorized INSIZE distributor. Contact information can usually be found on the manufacturer's official website or on the product packaging.

