Mikrosize®

iMetal-300

Inverted Metallographic Microscope

Contact us

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Features and Applications

iMetal-300 is a cost-effective inverted metallographic microscope equipped with an intelligent light intensity management system. When the magnification of the objective lens is changed, the microscope automatically adjusts the light intensity to the optimal level. It adopts an LED light source, which ensures constant and consistent color under different light intensities, with more vivid color rendering than halogen lamps. The microscope is featured with an ultra-large stroke stage, ergonomic stage knobs and focusing knobs, and a standard 5-hole encoded nosepiece.

Product Features

- Adopts an infinite optical system, matched with plan semi-apochromatic objective lenses and wide-field high-eyepoint eyepieces to restore the true details of metallographic structures and meet the requirements of high-precision detection.
- The full range of objective lenses has a long working distance; the max. 50X magnification still maintains an 8.5mm working distance, enabling the observation of large-size and special-shaped samples without frequent sample preparation, thus improving detection efficiency.
- Automatically matches the optimal light intensity when switching objective lens magnifications, eliminating the need for repeated manual adjustment, reducing operational steps, avoiding human errors, and greatly improving detection fluency.
- 4000K-4300K warm white LED light source with a color rendering index (CRI) ≥95 accurately restores the true color of samples, avoids misjudgment caused by color deviation, and is suitable for metallographic rating and image analysis.
- 45° inclined hinged trinocular tube with a beam splitter ratio of 100:0/0:100 supports simultaneous connection of human eye observation and imaging systems, meeting the needs of photographing, video recording and digital archiving.
- Coaxial coarse and fine focusing system (1μm fine focusing graduation) + 50×50mm large-stroke stage, combined with a 5-hole encoded nosepiece, realizes precise positioning, smooth operation and stable precision during long-term use.

Product Details

Product Applications

- Used for grading the grain size and inclusions of steel, non-ferrous metals and other materials, and evaluating the effect of heat treatment processes and material properties.
- Detects defects such as cracks, blowholes and porosity in castings and weldments, traces the causes of failure, and ensures the reliability of product quality.
- Precisely observes microstructural changes after processes such as quenching and annealing, optimizes process parameters, and ensures the process stability of mass production.
- Clearly presents the microstructures of weld fusion zones and heat-affected zones, detects defects such as incomplete penetration and slag inclusion, and meets the acceptance criteria of welding processes.
- Observes the porosity and sintered structure of powder metallurgy parts, as well as the thickness and bonding interface of coatings and platings to control coating quality.
- Suitable for teaching experiments in materials science for metallographic structure observation and material performance analysis.

Instrument Appearance

1.Eyepiece **2.Trinocular Observation Tube** **3.Camera**
4.Adaptive Lens **5.Light Source Control Knob Button** **6.Workbench**
7.Coarse And Fine Coaxial Adjustment Knob **8.Workbench Control Handle**
9.Nosepiece **10.Objective Lens**

Product Details

Product Structure

- Ultra-large stroke stage (50*50mm)
- Ergonomic stage knobs and focusing knobs
- Customizable stage accessories for special samples
- The workbench is equipped with a graduated scale for more precise adjustment by users

- Selection of objective lenses suitable for various applications:
- Flat-field objective lenses: 5X, 10X, 20X, 50X, 100X
- Half-macro objective lenses: 2.5x, 5x, 10x, 20x, 50x, 100x
- Full objective lenses: 5X, 10X, 20X, 50X, 100X
- iMetal-300 The standard configuration includes a five-port optical microscope converter. In the future, the hardware settings of the microscope and the image analysis software can be integrated. The illumination intensity and the position of the objective lens are all recorded in the software.

Product Details

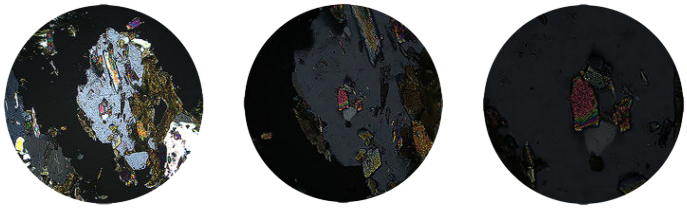
Product Structure

- Coaxial coarse and fine adjustment knobs with adjustable tightness and a 1μm fine focusing graduation
- Smooth and accurate knob adjustment.

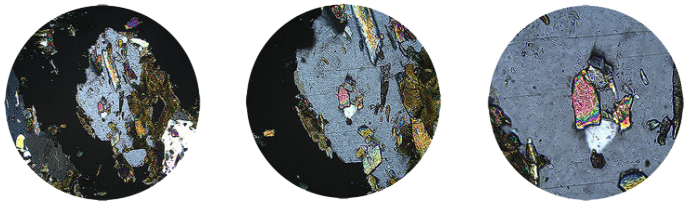
- Constant color temperature of 4500K, CRI ≥ 95, and a service life of 50,000 hours.
- True color imaging is fully achievable at both high and low brightness levels.
- Generates almost no heat, with illumination intensity equivalent to a 100W halogen lamp
- Stepless adjustment of illumination intensity; the desired illumination intensity can be set for each objective lens, and the intensity is automatically adjusted when switching objective lenses.

Product Details

Intelligent Light Intensity Management System

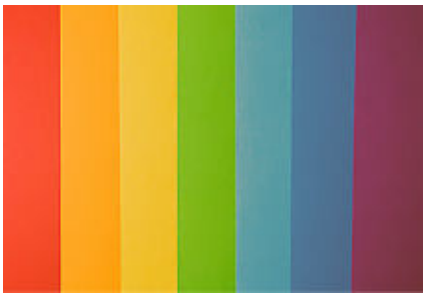


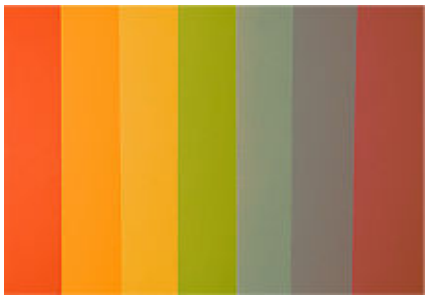
- For traditional microscopes, the image becomes darker as the magnification of the objective lens is increased.



- The intelligent light intensity management system automatically adjusts the light intensity to the optimal level when the magnification of the objective lens is changed.

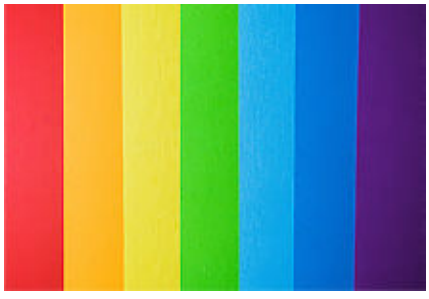
LED Light Source





- Halogen lamp: Color changes under different light intensities.

- LED light source: Constant and consistent color under different light intensities, with more vivid color rendering than halogen lamps.

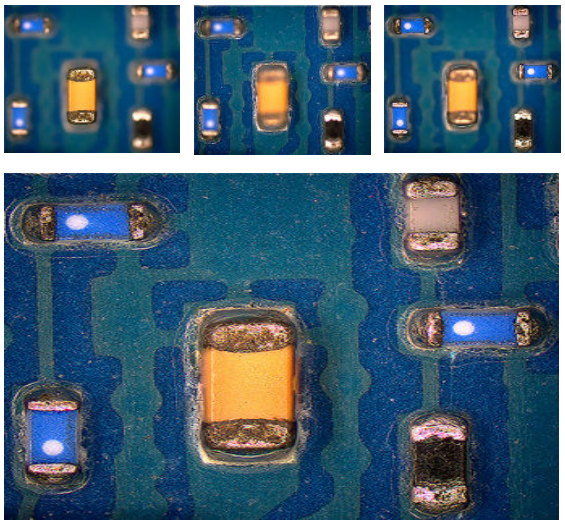


Operation Interface

Software Function: Image Stitching

- Real-time image stitching function: Adopting image recognition technology, a panoramic image can be obtained simply by moving the stage knobs, providing a wider field of view for users.

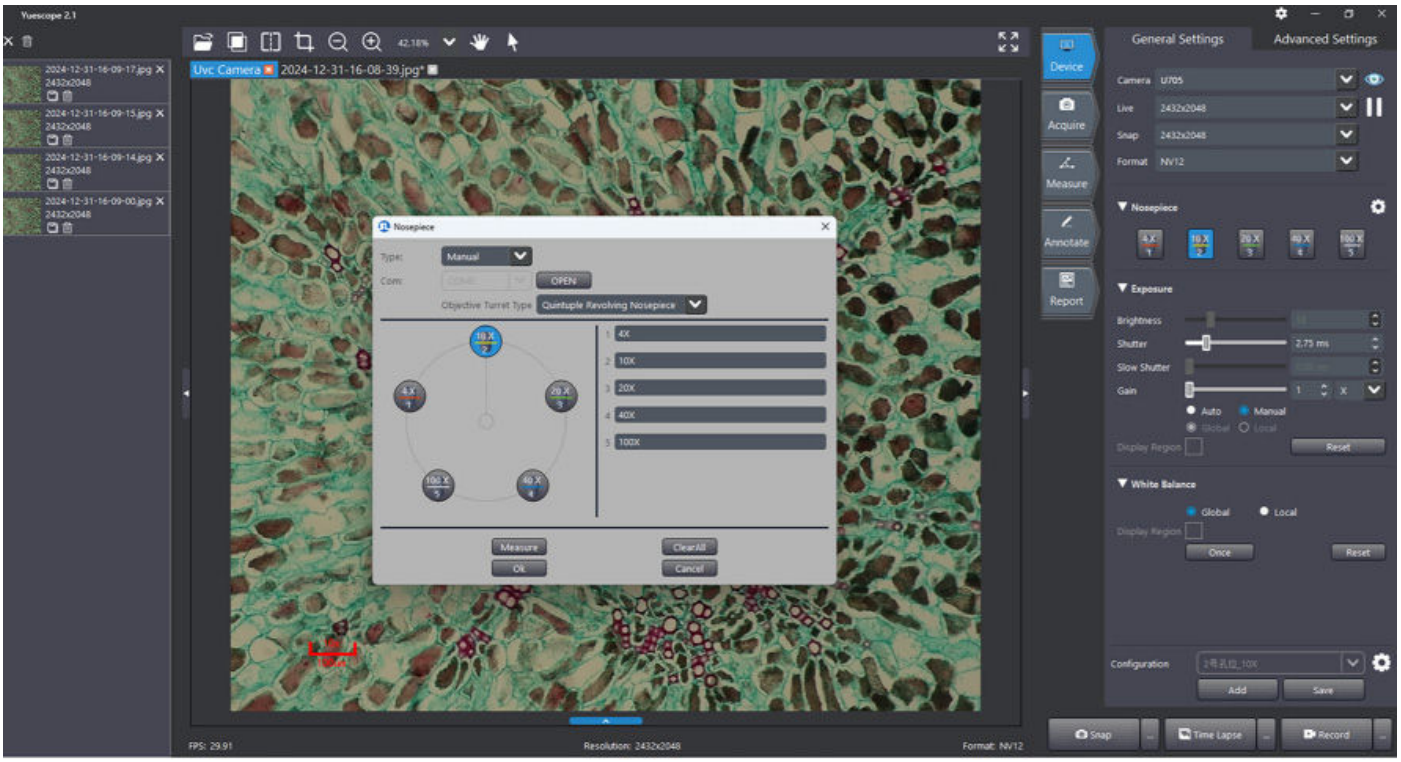
Software Function: Depth of Field Fusion

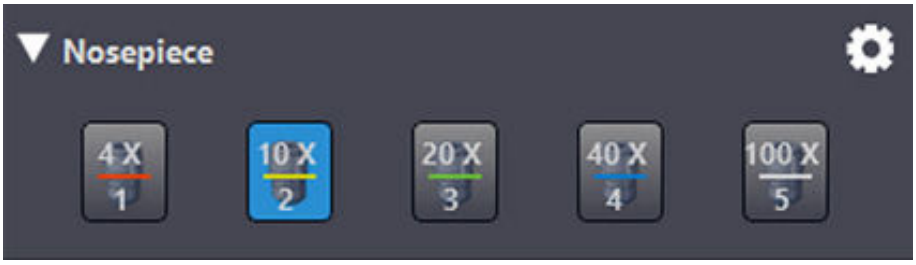


- Real-time depth of field fusion function: Capable of capturing images of samples with a height exceeding the objective lens depth of field and superimposing them to create an ultra-depth of field image.

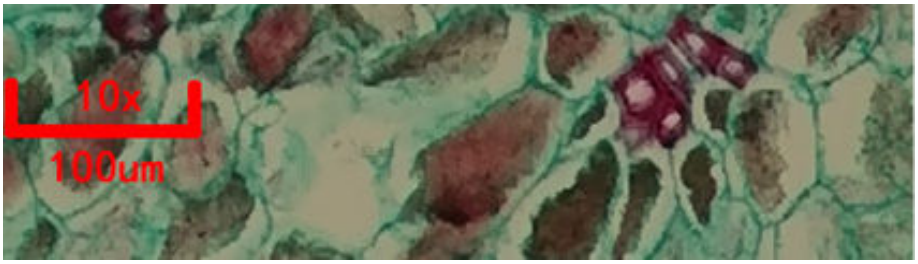
Operation Interface

Software Functions





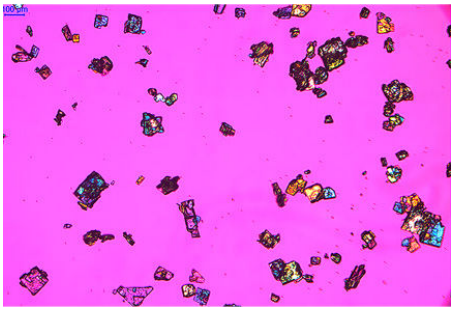
- Automatic objective lens recognition by software.



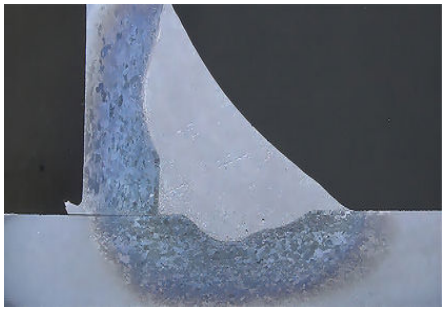
- Automatic scale bar switching by software when the objective lens is changed.

Operation Interface

Measurement Imaging

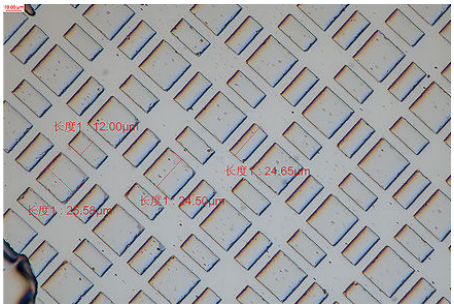


The drug powder under polarized light

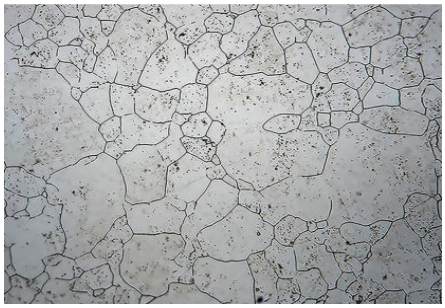


Measurement of aluminum alloy melting depth

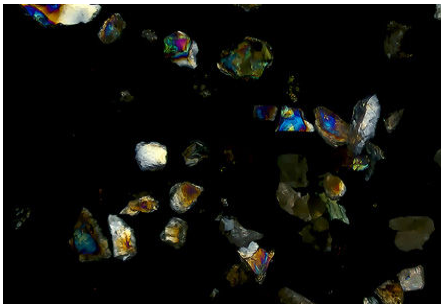
Capacitor tin plating height detection



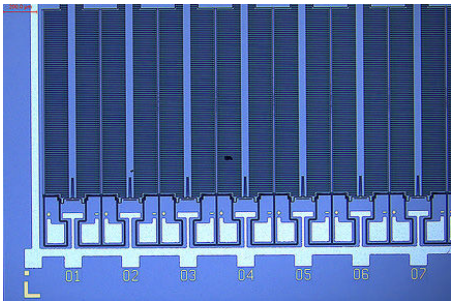
OLED photoresist material



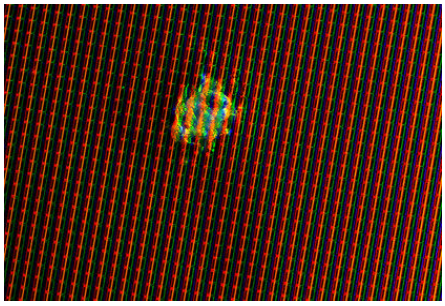
Metallographic structure analysis



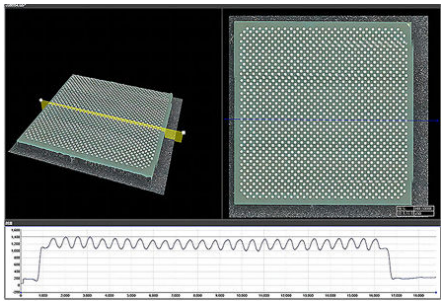
Phase analysis of rocks



Semiconductor testing



Display screen defect detection



The 3D shape of the tin ball

Technical Specification

Optical System	Infinite distance optical system, intelligent light intensity management system (LED)
Observation Tube	Hinged trinocular tube (compatible with imaging systems), 30° inclined, interpupillary distance 48-86mm, adjustable eyepoint, beam splitter ratio 100:0/0:100
Eyepiece	Ultra-wide field of view eyepiece 10X (field of view Φ 23mm), with high eye point and adjustable diopter.
Objective Lens	LMPL5X,NA=0.15,WD=12mm
	LMPL10X,NA=0.3,WD=16mm
	LMPL20X,NA=0.4,WD=12mm
	LMPL50X,NA=0.55,WD=8.5mm
	MPLFL2.5X,NA=0.08,WD=9.8(Optional)

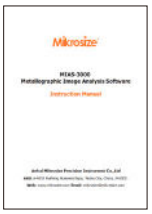
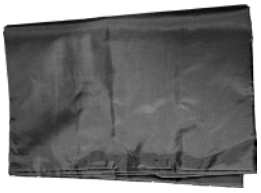
Technical Specification

Objective Lens	LMPL100X,NA=0.8,WD=3(Optional)
Objective Lens Adapter	Five-hole coded objective lens converter
Reflective Lighting System	LED lighting, with a color temperature ranging from 4000K to 4300K, and a color rendering index of ≥ 95
Reflective Observation	Bright-field critical lighting system, LED light source with a lifespan of 50,000 hours
Focus Adjustment System	Coaxial with coarse and fine adjustment. It can be adjusted for tightness. The fine adjustment value is 1 micron.
Workbench	Double-layer mechanical loading platform, with a travel range of 50*50mm
Intelligent Management	When changing the magnification of the objective lens, the control circuit will automatically adjust the light intensity to the most suitable level.
Camera Interface	Standard C-type interface 0.5X, adjustable focus, suitable for CCDs within 2/3 inches

Standard Delivery

Name		Qty	Photo
Host Machine		1pc	
Eyepiece		2pcs	
Objective lens	5X NA0.15 WD12	1pc	
	10X NA0.3 WD16	1pc	
	20X NA0.40 WD12	1pc	
	50X NA0.55 WD8.5	1pc	
Converter		1pc	
Workbench		1pc	
Camera		1pc	

Standard Delivery

Name	Qty	Photo
C-Type Camera Interface	1pc	
Instruction Manual	1pc	
Mikrosize Microscopic Analysis Software	1pc	
High-Precision Micrometer,With A Graduation Value Of 0.01mm	1pc	
Dust Cover	1pc	
Power Cord	1pc	
Camera Cable	1pc	

Optional Delivery

Objective Lens	2.5X NA0.08 WD9.8
	100X NA0.8 WD3
Polarization Observation	Transmissive polarizer / Reflective polarizer
	A polarizer that can rotate 360 degrees
Camera Interface	Standard C-type interface 1X,adjustable focus,suitable for CCD within 4/3 inches

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