MAGIC PHOTOELECTRIC TECHNOLOGY

3D MEASURING MICROSCOPE

DMF1000

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3D Optical Digital Microscope MODEL: DMF1000

Specifications and appearance are subject to change without prior notice

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3D Measuring Microscope

DMF1000

The **DMF1000** 3D Measuring Microscope integrates an optical lens group with an industrial HD camera, which directly forms images on a display screen via the HD camera. A built-in optical zoom unit is embedded in the microscope host to achieve the magnification required for observing different samples, and it can generate 3D contour images through electric scanning.
It is widely used in the biological field, precision machinery manufacturing, electronics, semiconductors, materials science and other industries.
It is applicable for high-magnification observation, 3D observation, metallographic analysis, and high-precision dimensional measurement of products, among other applications.

Advantages:

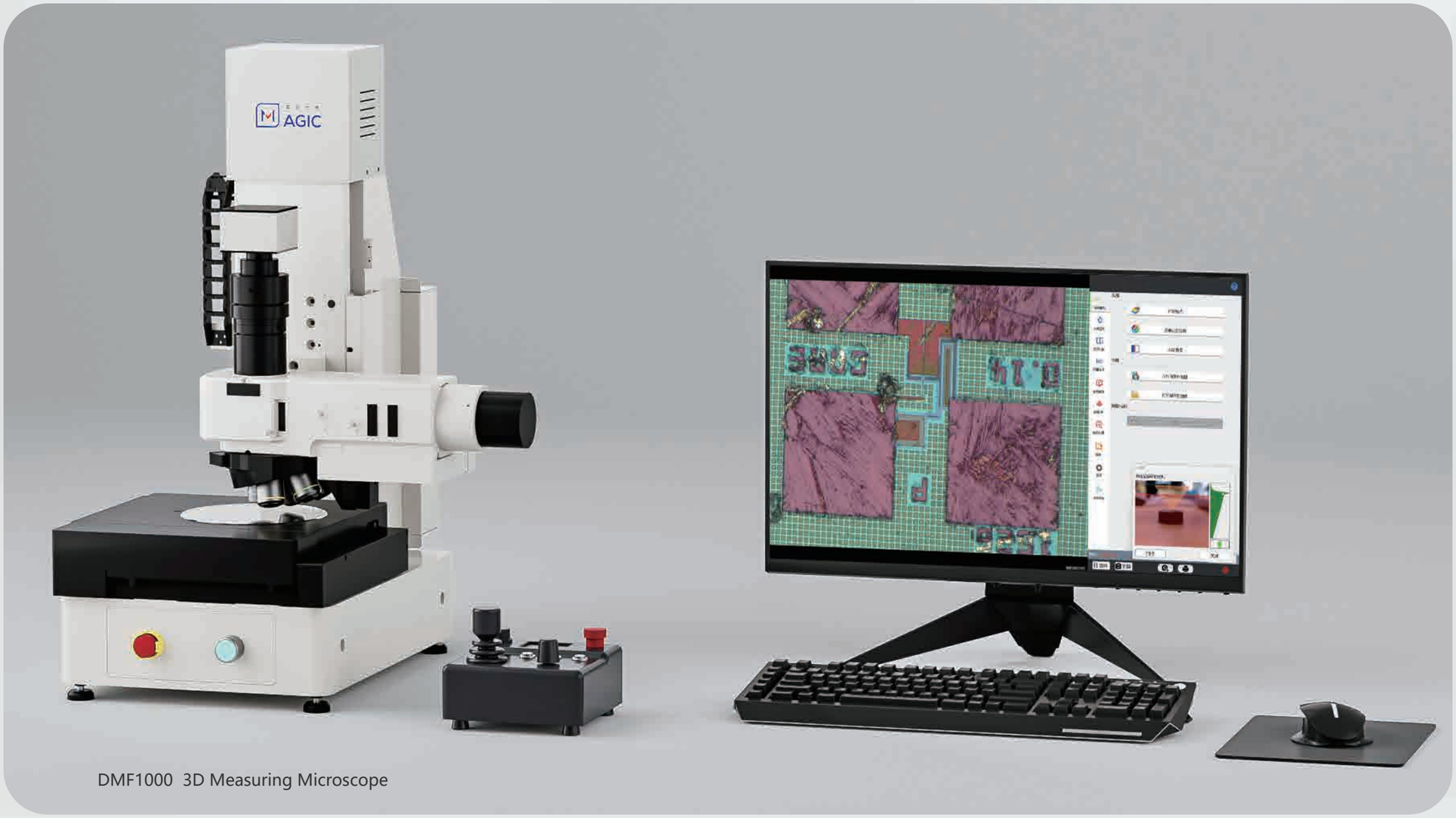
1、Ultra HD Image Stitching Function: Realizes image stitching while moving the microscope stage, enabling the shooting of large-range panoramic photos with a stitching range of ≥100×100mm.

2、Ultra Depth of Field 2D/3D Imaging and Measurement Function: Capable of generating 2D planar images, 3D contour maps, 3D height maps, 3D black-and-white images, etc.

3、Automatic Objective Switching Function: The electric zoom head with an automatic objective turret allows for quick and easy objective replacement.

4、Particle Statistics Function: Accurately measures particle parameters such as quantity, size, shape and distribution.

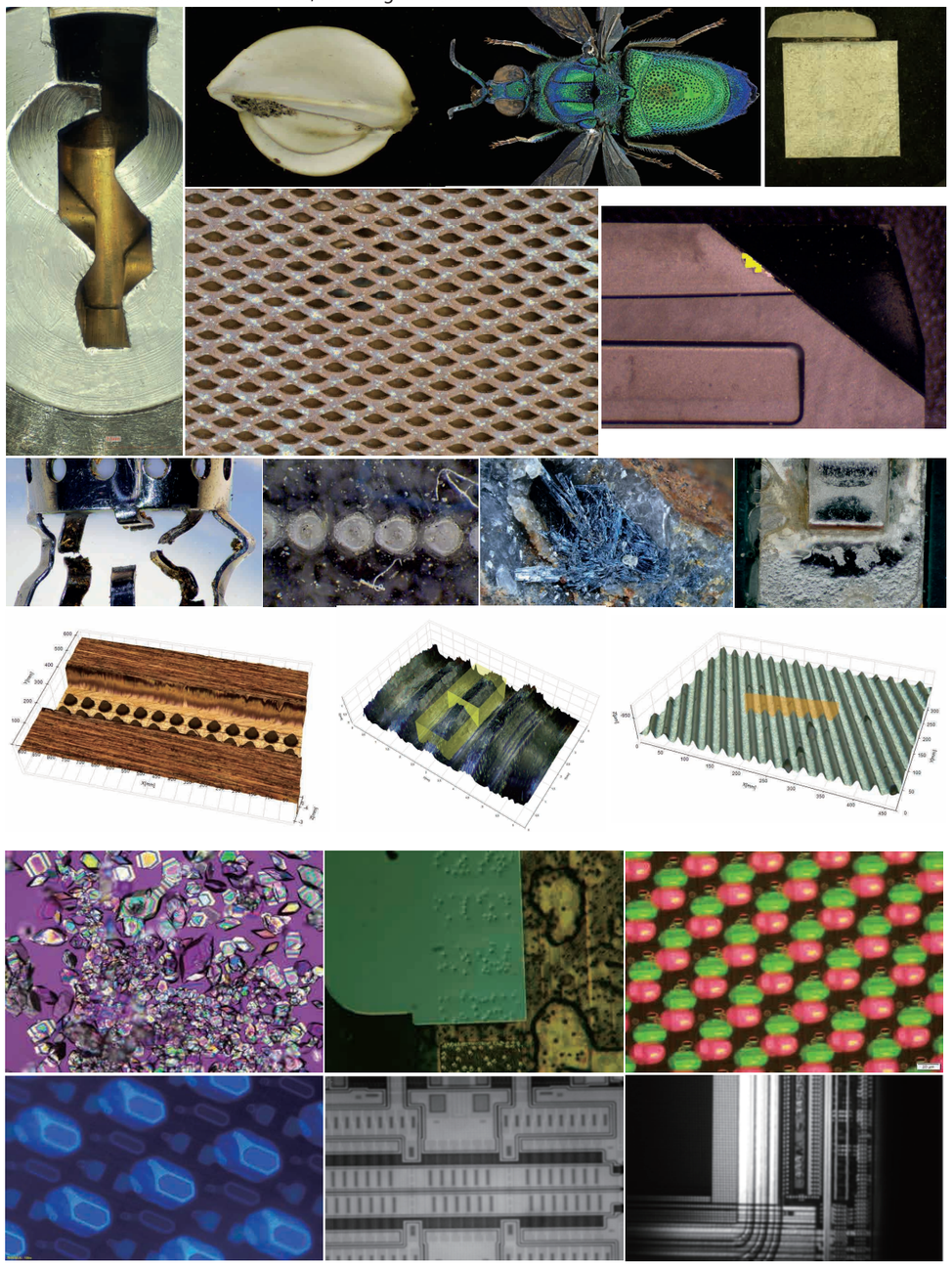
5、Intelligent Detection Optimization Function: Intelligent applications greatly simplify the user's operation process and improve detection efficiency.



DMF1000 3D Measuring Microscope

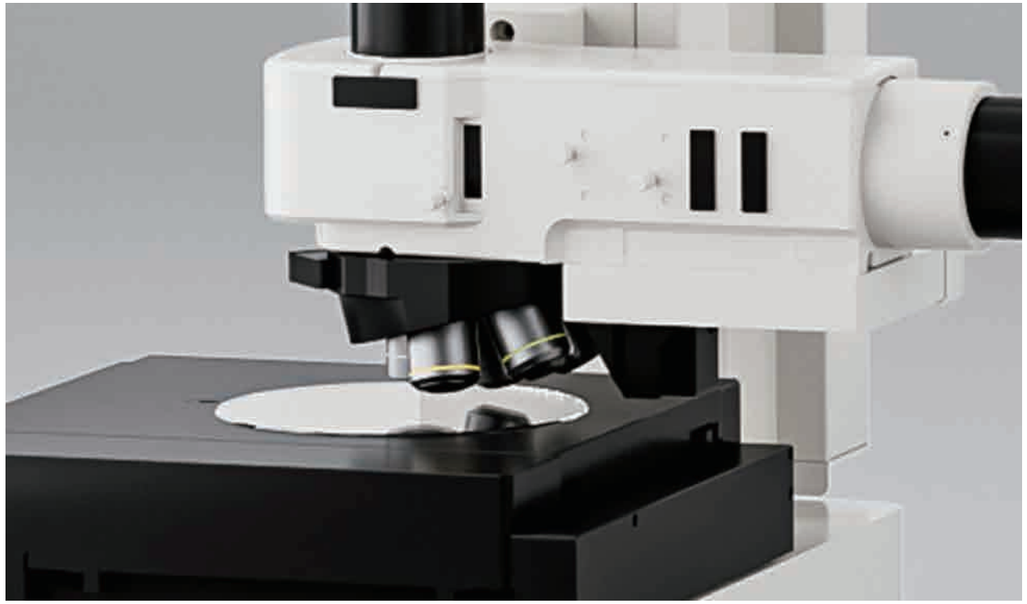
Powerful measuring & imaging performance, trusted quality and cutting-edge technology!

The DMF1000 3D Measuring Microscope features an excellent depth synthesis function. It automatically captures multiple images at different focal points, and by utilizing advanced image processing and stacking algorithms, it precisely fuses the in-focus areas of these individual images to generate a high-definition extended depth of field image. It not only preserves all the fine details on the sample surface but also faithfully restores the concave and convex structures of the surface, resulting in more realistic and three-dimensional observation results.



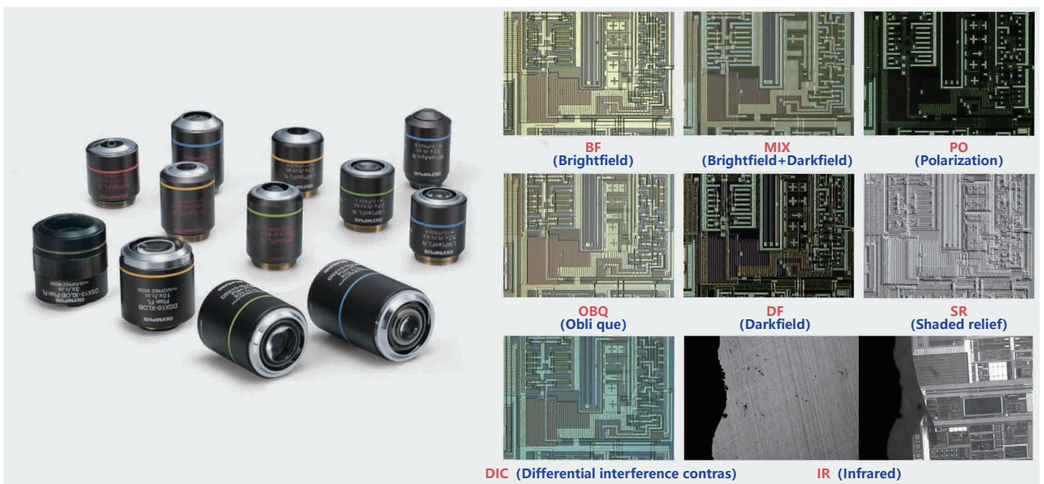
Excellent optical technology delivers outstanding imaging

- Superior optical technology enables realistic imaging of ultra-fine samples.
- Advanced measurement technology enables accurate measurement of samples.
- The autofocus and focus navigation system makes measurement simpler and more precise.
- A comprehensive traceability system delivers reliable and trustworthy measurement results.



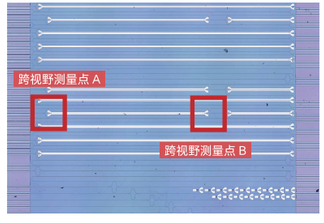
Multiple observation methods

The standard optical head of DMX1000 3D optical digital microscope can achieve bright field; Skewness, dark field MIX、Polarization, differential interference and other observation methods can be used, and the infrared optical head can be easily switched to penetrate the silicon substrate and observe the internal semiconductor circuit.

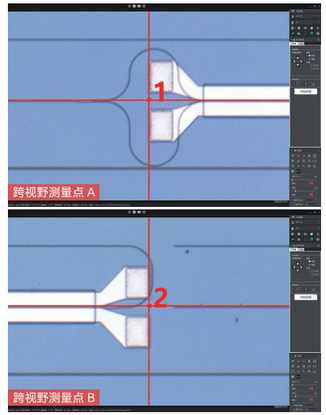


Cross-Field-of-View Measurement

The DMF1000 delivers a solution for large-range dimensional measurement, eliminating the tedious steps of conventional methods. Users only need to easily designate two points across the field of view to achieve fast and accurate measurement of the distance between them.



20X



200X

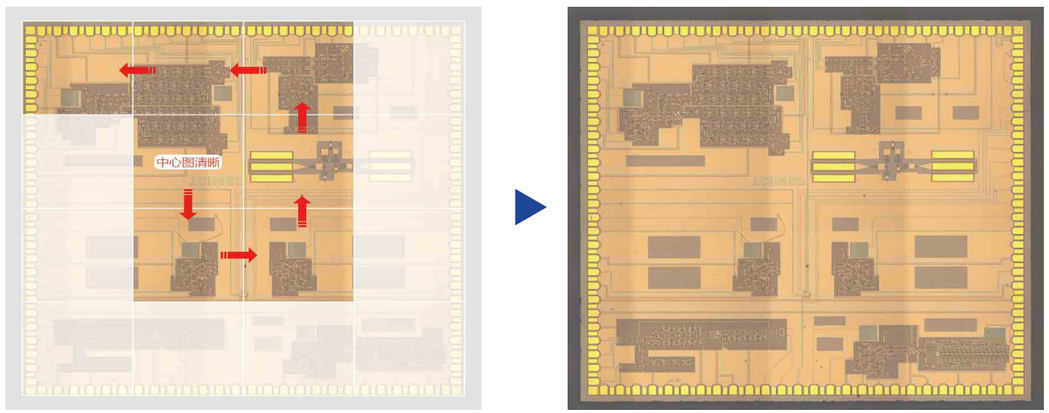
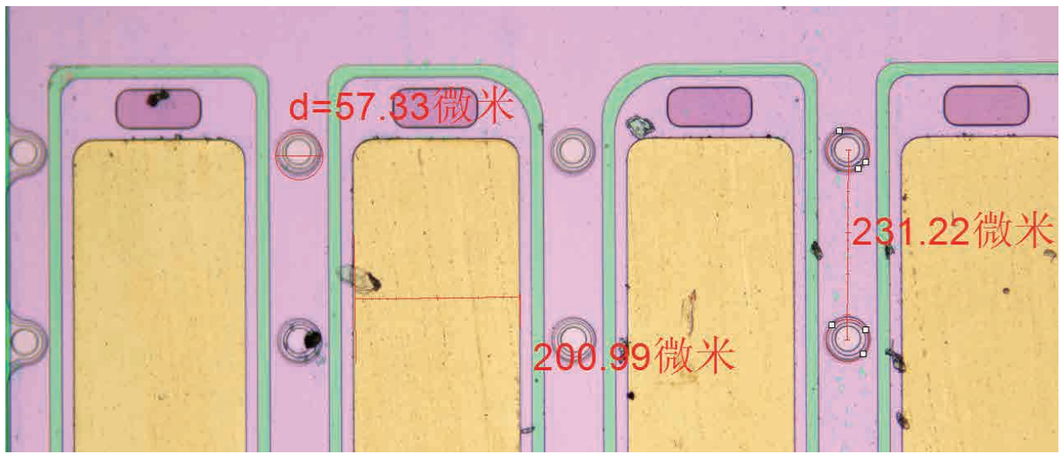


Image Stitching Function

Stitching multiple images enables the acquisition of a high-magnification wide-field image. Since the images are stitched based on coordinate data, the system is able to generate highly reliable images.

Map Navigation Function

In the inspection of large-size samples, a navigation map can be generated. Click any position on the navigation map in the software, and the stage will automatically move to the corresponding position.

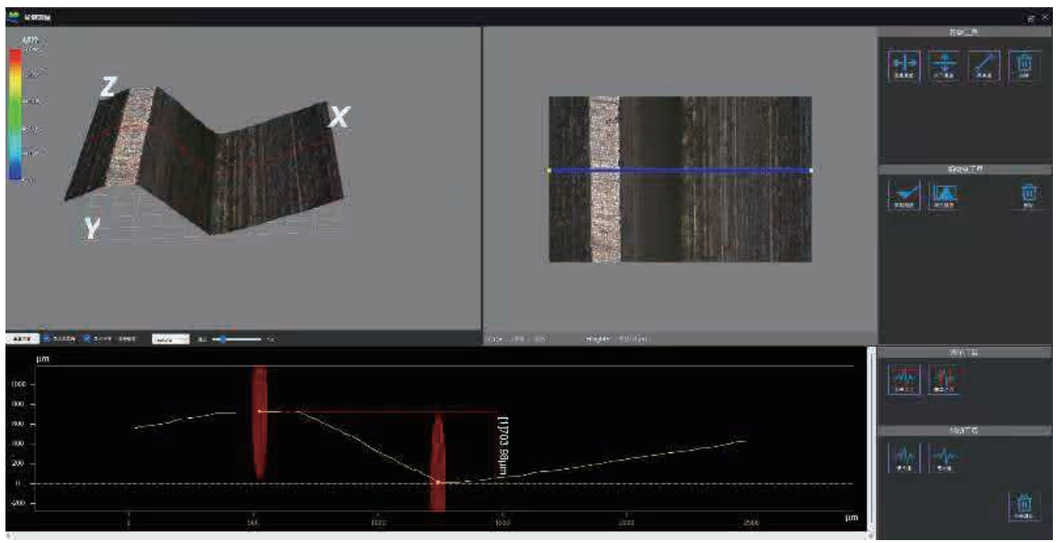


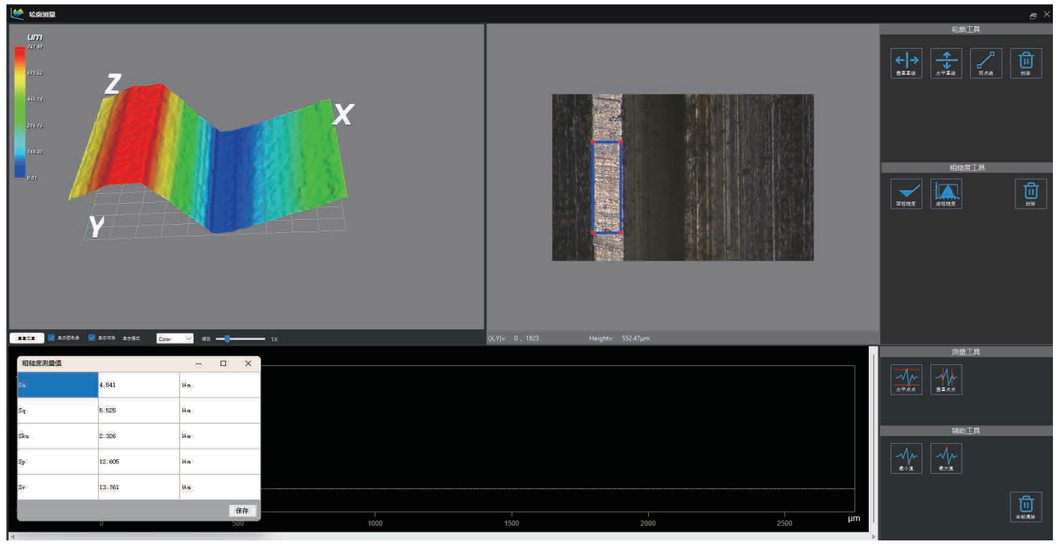
2D Image Measurement

It delivers a diverse range of measurement functions, such as point-to-point, point-to-line, parallel lines, angles and areas, and supports exporting data to Excel.
Users can customize settings (font size, line color, unit display) to optimize the measurement experience.

3D Measurement

Visible light observation can be optionally integrated, which achieves micron-level measurement accuracy and meets the requirements for high-precision measurement. It automatically measures and outputs results, greatly improving inspection efficiency. It can be used to measure the height difference between points and height extreme values; the distance, angle and arc radius of cross-sections; the volume and surface area of protrusions and depressions; as well as line roughness and surface roughness, among other parameters.



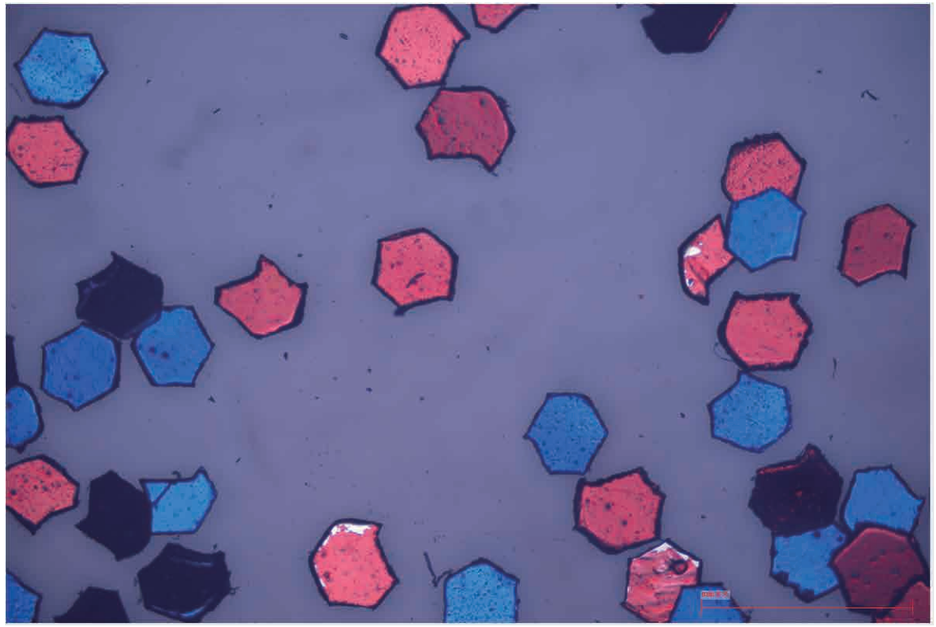


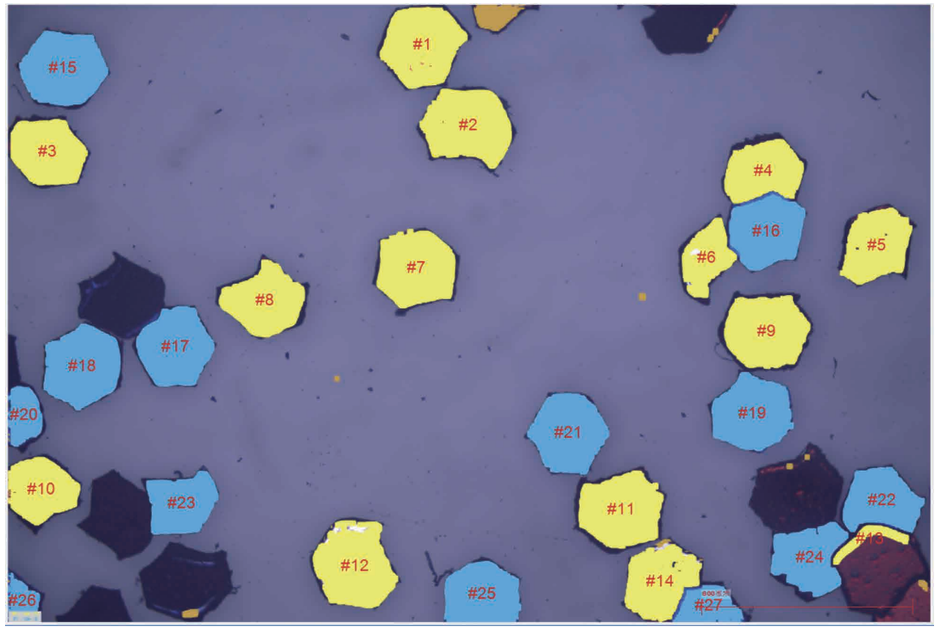
Roughness Measurement

It can deliver non-contact line and surface roughness measurement, in compliance with the line roughness standard ISO 4287:1997 and the surface roughness standard ISO 25178-2:2012.
This software is applicable to a wide range of applications requiring surface texture analysis. The implementation of surface roughness measurement is based on the data collected from sample topographies.

AOI Function:

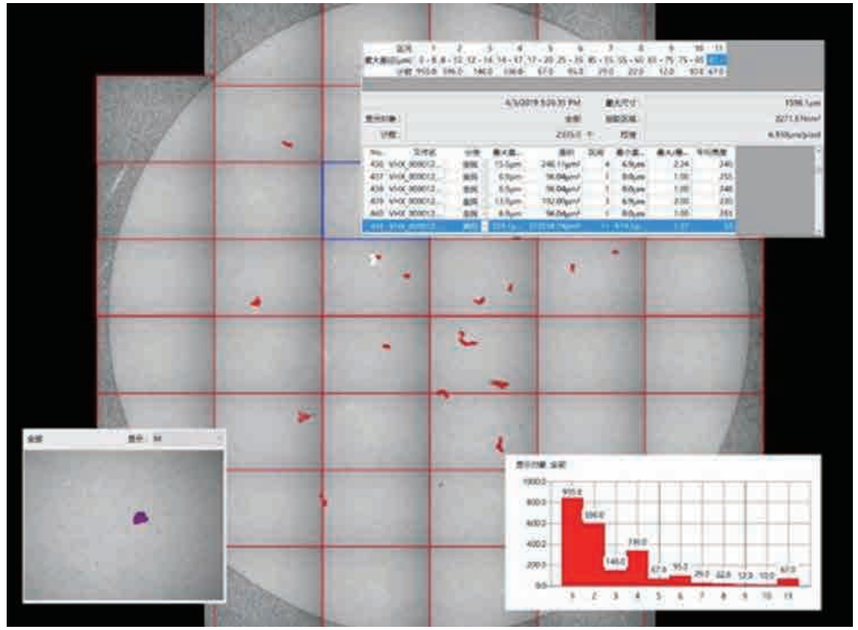
It can perform particle counting and classification on single field-of-view images as well as large stitched scanned images.
Classification criteria can be customized freely, such as by shape, size, color and other attributes.
It also supports one-click export of statistical reports.



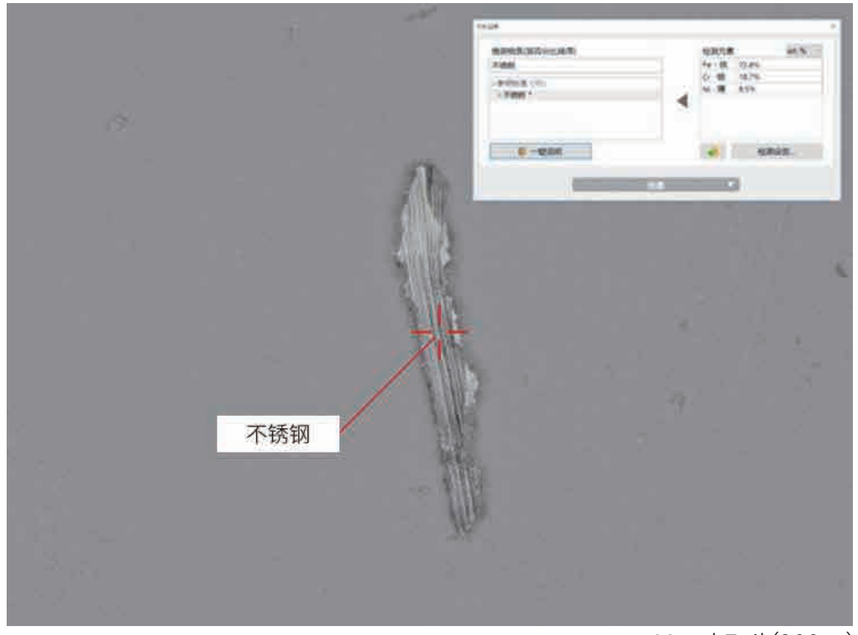


LIBS Function:

After software analysis, it directly performs elemental identification of residual foreign matter, eliminating the need to move the sample between instruments and with no risk of missing the target.



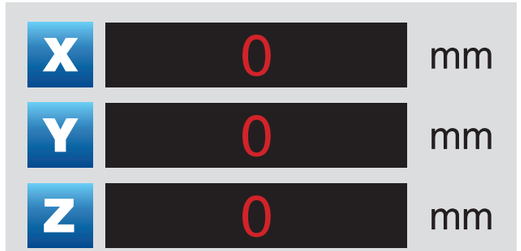
Membrane Filter



Metal Foil (200×)

Precision measuring tools ensure the accuracy of results.

The significance of measurement lies in restoring the true data of samples. The rigor of measuring tools precisely exemplifies the brand's quality.
As modern manufacturing technology becomes increasingly miniaturized and sophisticated, high-precision measurement is growing in importance — high-precision measurement is no longer limited to the XY-axis plane, but has also become a necessity in the Z-axis direction.
The main body of the DMF1000 3D Measuring Microscope adopts a high-precision XYZ three-axis base;
The base is composed of granite and precision cast aluminum, equipped with a motorized displacement stage and a motorized Z-axis. XY travel range: ≥100mm×100mm (customizable for larger dimensions), and fitted with a high-precision grating ruler with 0.1 μm resolution.



High-Precision Grating Ruler

More User-Friendly Motorized Focusing Controller

The DMF1000 3D Measuring Microscope is equipped with an independent 3-speed focusing and grating ruler reading zero-clearing controller, which ingeniously eliminates the inconvenience caused by manual adjustment and enables users to easily achieve precise focusing on samples and dimensional measurement.

Counter with Real-Time Value Display

The counter is equipped with a digital display screen, enabling users to intuitively view the current dimensional values of the sample, with an accuracy of 0.1 μm. It also features zero clearing, mm/inch switching and linear compensation functions.

Automatic Objective Switching

Using an electric zoom head with an automatic objective turret allows for quick and easy objective lens replacement. You can control the objective turret via the control panel or a computer.
In the ergonomic system, the easily replaceable objectives and adjustable settings enable you to work faster while maintaining comfort.

DMF1000 Technical Specifications Table

Model	DMF1000
Optical System	UIS2 Optical System (Infinity Corrected System)
Observation Tube	5°~35° tiltable angle, erect image, infinite conjugate hinged trinocular viewing tube; Monocular diopter adjustment: ±5 diopters; Interpupillary distance adjustment range: 50mm~76mm; Two-position beam splitter ratio, binocular : trinocular = 100:0, 0:100
Eyepiece	High eyepoint & wide field Plan eyepiece PL10X/22mm, with diopter adjustment, can be equipped with a micrometer scale
Nosepiece	Five-position Motorized Nosepiece (DIC slot)； Bright & Dark Field Five-position Motorized Nosepiece (DIC slot)
Objectives	2.5×、5×、10×、20×、50×、100×
Magnification	Optical Magnification: 107×–2100×
Measuring Microscope Main Body	High-Precision XYZ Three-Axis Base: Granite + Precision Cast Aluminum Base; Motorized Z-axis, Max Travel ≥200mm; 0.1 μm Resolution Grating Ruler Equipped
Stage	Motorized or Manual Stage (Motorized stage required for automatic image stitching); XY Travel Range: ≥100mm×100mm (Customizable for larger dimensions); equipped with a high-precision grating ruler with 0.1 μm resolution.
Illumination System	12V 100W Halogen Light Source: Covered wavelength range: 350–2500 nm; or a long-life LED light source.
Focusing Method	Motorized Motor-Driven Focusing: 3-speed (L/M/H) Motorized Buttons, Z-axis Focus Knob; X/Y/Z Control Handle: Adjustable Speed, Grating Ruler Data Display Screen Equipped
Camera	8.0 MP Professional Camera, USB 3.0; (Optional: 20.0 MP Color Camera, Visible Light Image Acquisition System, USB 3.0)
Imaging & Video Interface	0.5×/0.65× CTV, C-Mount, Focusable
PC	Lenovo IdeaCentre 510S + 27" Monitor
Software	MAG-SHOT Analysis Software for Measuring Microscopes Real-time display of three-coordinate data from digital readouts, equipped with an image measurement module. Supports automatic edge detection, basic image acquisition and 2D measurement, automatic depth-of-field stacking, 3D contour imaging and measurement, height map generation, automatic image stitching, and one-click report export, among other functions.
Other Accessories	Polarizer Insert Plate, 360° Rotatable Analyzer Insert Plate; Reflective Interference Filter Set (B/G/R); High-Precision Micrometer Scale; DIC Components; Calibration Slide

DMF1000 Dimension Drawing (mm)