



MEASUREMENT SOLUTION PROVIDER



LARGE DEPTH OF FIELD 3D MEASURING MICROSCOPE

CATALOGUE NO. ISM-H-E01

**LARGE DEPTH OF FIELD 3D MEASURING MICROSCOPE
CODE ISM-H5000**

The ISM-H5000 enables both 2D and 3D observation, and is equipped with functions such as image stitching, measurement, image quality enhancement, and auto-focusing. It boasts higher magnification, larger depth of field, more comprehensive observation angles, more powerful image processing capabilities, more accurate dimension measurement, and more intelligent instrument operation.

Tilt Observations

Large depth of field observation at various angles.

Focusing Z-axis can be adjusted within $\pm 89^\circ$ for panoramic view without tilting the sample.

With 30-6000X 3D stereo imaging capability, it provides a clear picture of the microstructure and detailed features of the sample, allowing all sides and sloping surfaces of the sample to be viewed, not just the top or bottom. It analyzes the 3D structure of the sample in multiple dimensions, accurately capturing the undulating texture of the surface and clearly displaying subtle structural features.



Fast Focus



Focused Concentricity
Maintenance



Lens collision
avoidance



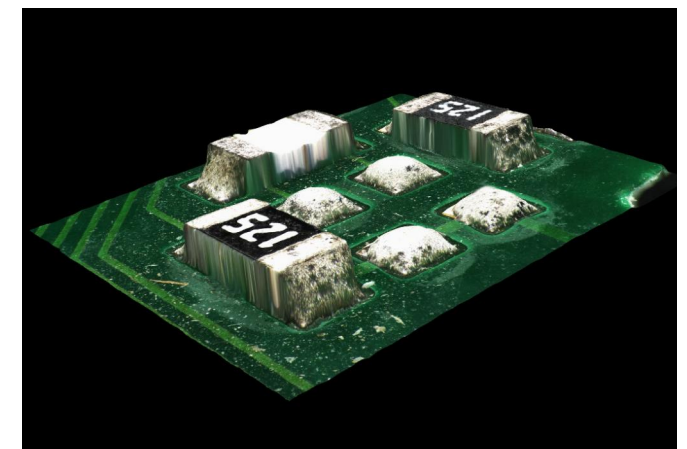
2D/3D Depth of Field Synthesis

Improving image resolution usually means choosing a high magnification lens, but when photographing samples with concave and convex morphology, the different heights of the sample surface prevent some areas from being in the optimal focus at the same time, often resulting in a large out-of-focus area in the image, a problem that is especially obvious in traditional optical microscopes.

The ISM-H5000 Large Depth of Field 3D Measurement Microscope cleverly solves this problem through its excellent depth compositing function: by automatically capturing multiple images with different focus points, and utilizing advanced image processing and stacking algorithms, it accurately fuses the respective in-focus areas of these images to produce a high-definition panoramic depth of field image. It not only retains all the details of the sample surface, but also perfectly reproduces the concave and convex structure of the surface, making the observation results more realistic and three-dimensional.

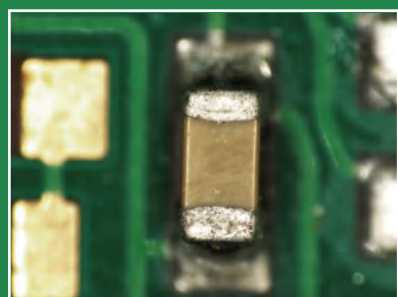
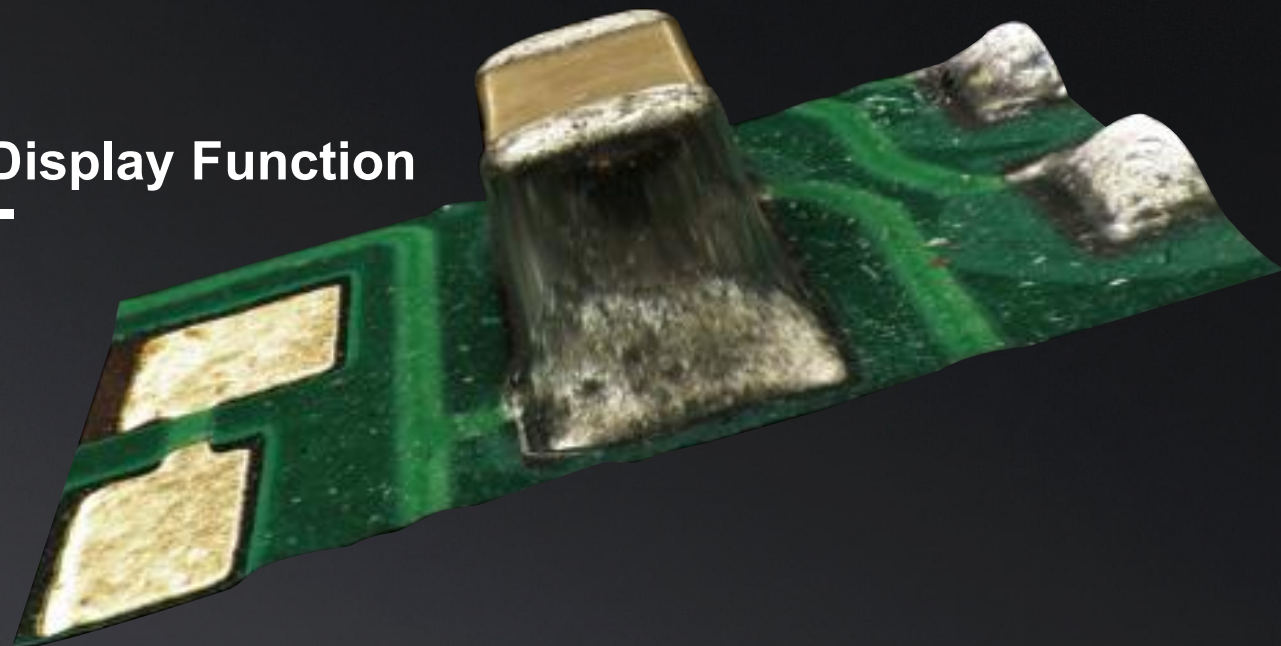


2D large depth of field display



3D composite display

3D Display Function



The focusing process starts at the lowest point of the object and progresses to the higher point. The advanced 3D display technology enables free, all-round observation of the surface shape of the object from any angle. Even if the surface of the object has complex relief, the system can use specific algorithms to synthesize images with different focus points, resulting in a full-frame, sharply focused image.



panoramic focus



accurate reflection



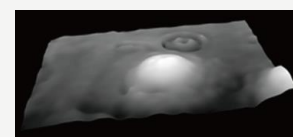
3D measurement



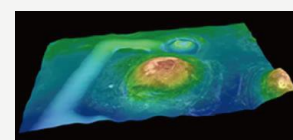
structural stereoscopy



3D model mapping as raw image, showing surface color and texture.

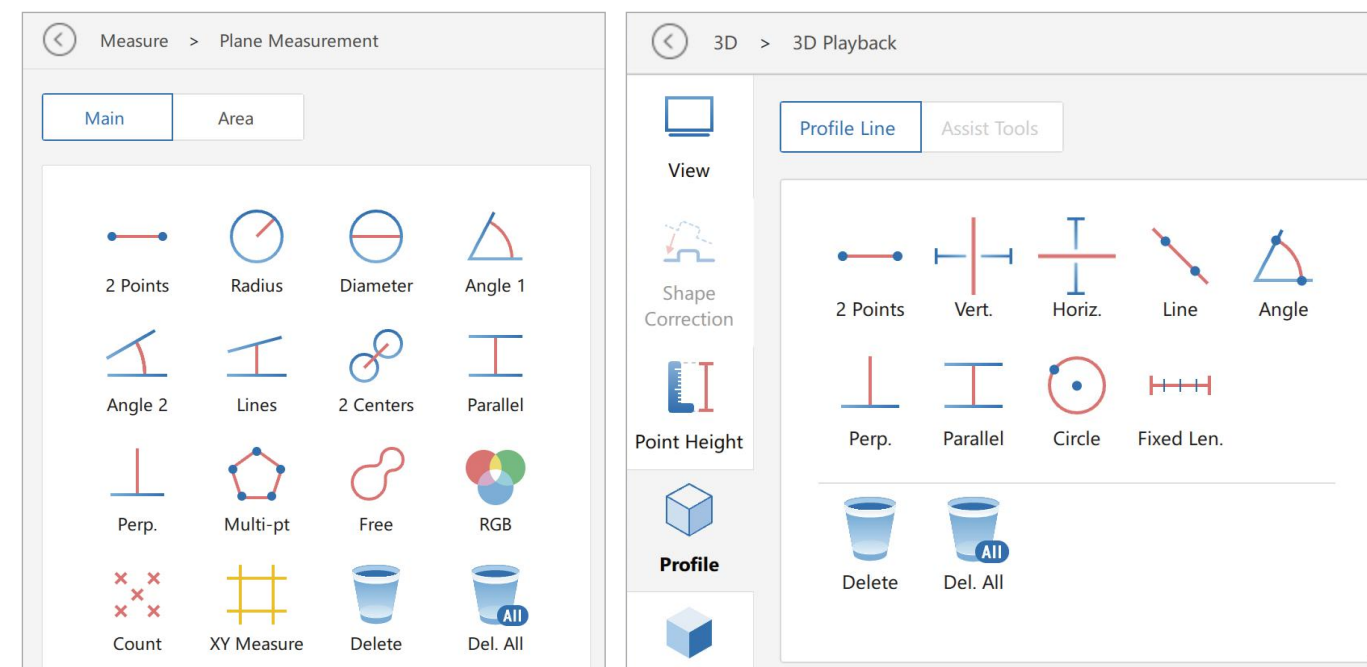


3D model with surface mapping removed and sample heights in black and white. White is high; black is low.



You can operate the height color slider; the height end is a real sample mapping, the color end is the height pseudo-color map.

2D/3D Measurement and Intelligent Analysis



2D Measurement Tools

Provide various measurement functions, such as between two points, circle, parallel lines, angle, etc. Support exporting data to Excel, and customizable settings (font size, line color, unit display) to optimize the measurement experience.

Particle Counting

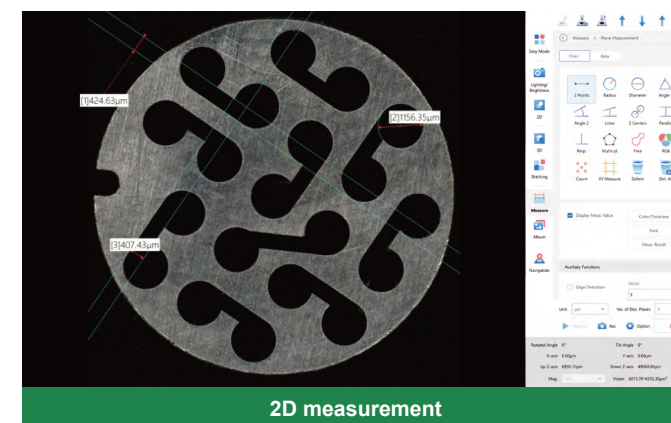
On captured still images or gallery-open images, by using different measurement functions, you can measure the desired length, angle, area and other parameters, as well as particle counting on featured samples.

3D Measurement Functions

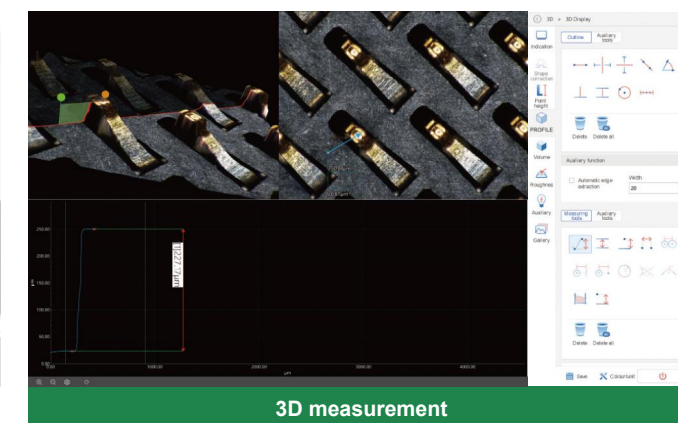
Calculate point heights, contours, and volumes.

Contour Measurement

Meticulously measure and analyze the shape of 3D reconstructed objects.



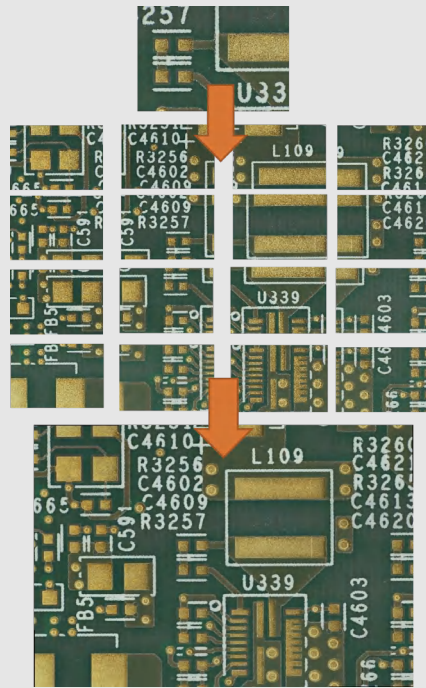
2D measurement



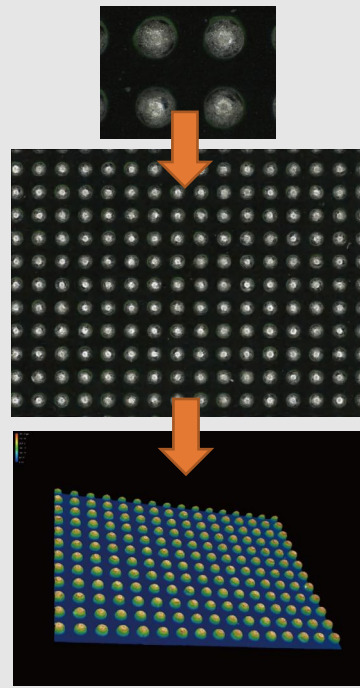
3D measurement

2D/3D Image Stitching

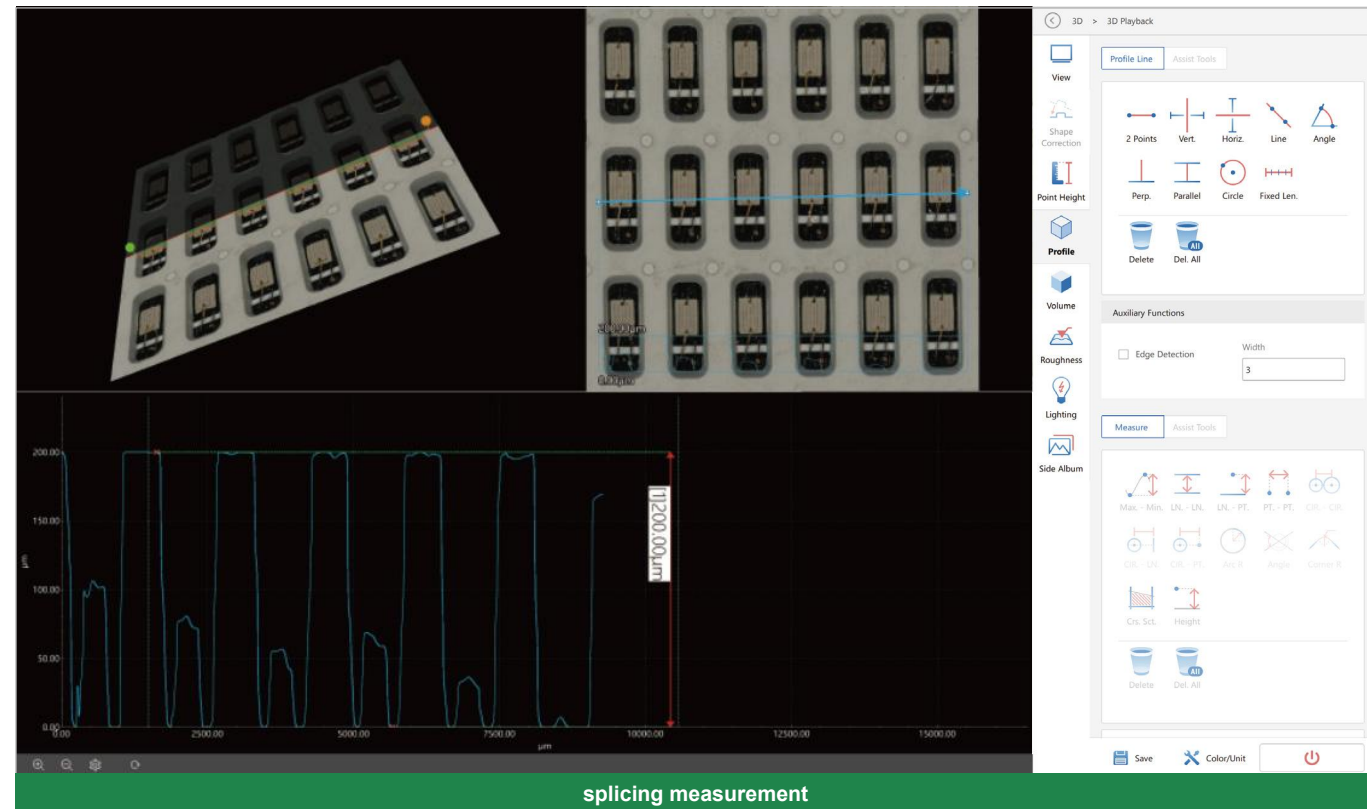
Image stitching, which seamlessly stitches together multiple images, provides an effective solution for observing tiny samples by taking multiple pictures of larger observation objects that cannot all be displayed within the usual shooting range. It not only expands the observation field of view, but also ensures the quality of the stitched images.



2D splicing



3D splicing



splicing measurement

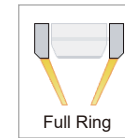
Multiple Lighting Options



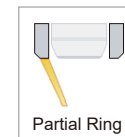
Bright field dropout, allowing samples to be viewed in bright field illumination.



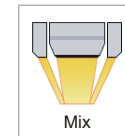
Brightfield slice shot, which allows you to emphasize bumps in brightfield lighting texture with 4 lighting directions.



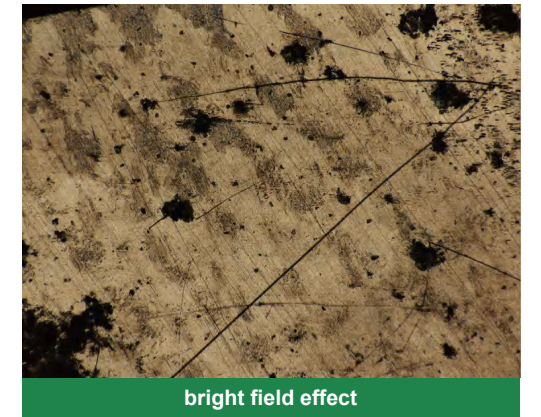
Dark-field dropout, which allows observation of samples in dark-field illumination.



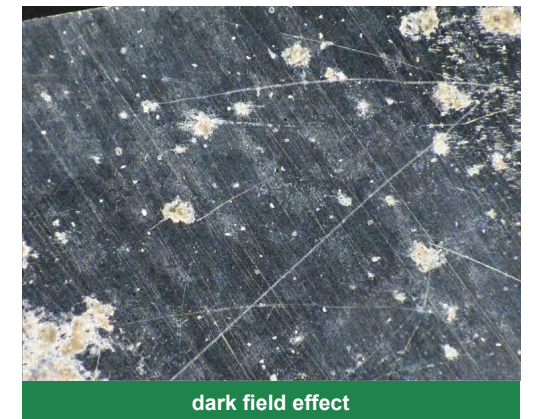
Brightfield slice shot, which allows you to emphasize bumps in brightfield lighting texture with 4 lighting directions.



The mixing of bright field lighting and dark field lighting can be adjusted using the progress bar to adjust the mixing ratio of the two.



bright field effect



dark field effect

Rotating Stage

Large-stroke, large-rotation-angle carriers

The load table has a travel range of 40mm x 40mm and can be rotated at a $\pm 90^\circ$ angle with a built-in angle sensor.





Shortcut Controller

The controller contains a variety of shortcut buttons to realize efficient and quick control of the microscope body and software.

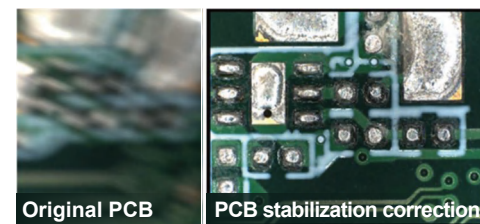
Supported functions include: navigation, illumination switching, ruler, annotation, split screen, tilt viewing, reflection removal, sharpening, auto focus, image stitching, halo removal, optical shadows, fast 3D compositing, anti-shake, photo taking, and more.



Motorized Objective Lens

Equipped with four objective lenses of 1.5X, 5X, 20X and 50X, fully motorized switching, easy and fast operation, can quickly adjust the magnification according to different observation needs, improve work efficiency.

Z-axis autofocus can quickly and accurately focus on the sample surface, reducing the tedious operation of manual focusing, optimizing the workflow, and ensuring accurate and reliable measurement results.

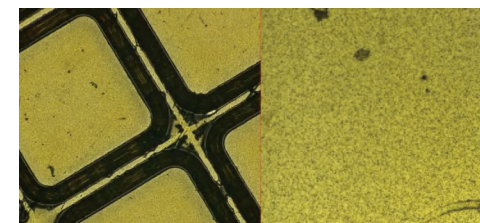


Original PCB

PCB stabilization correction

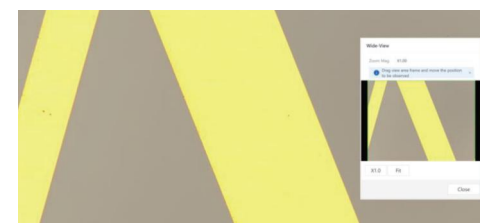
⦿ Anti-shake correction

Corrects for jitter when viewing at high magnification, resulting in a reduction in the degree of jitter when viewing the video stream.



⦿ Setting split screen

It is possible to display the observation sample area in a split screen and compare the difference between the overall image and the zoomed-in image, as well as to compare the image in the gallery with the live video stream. You can realize left/right split screen, top/bottom split screen, 4-split screen, and 9-split screen. As shown in the figure left-right split screen.

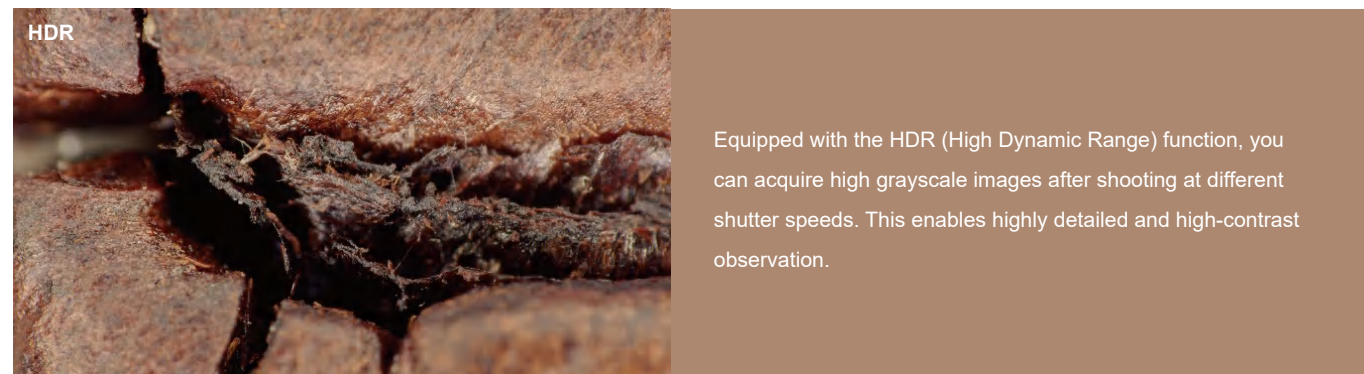
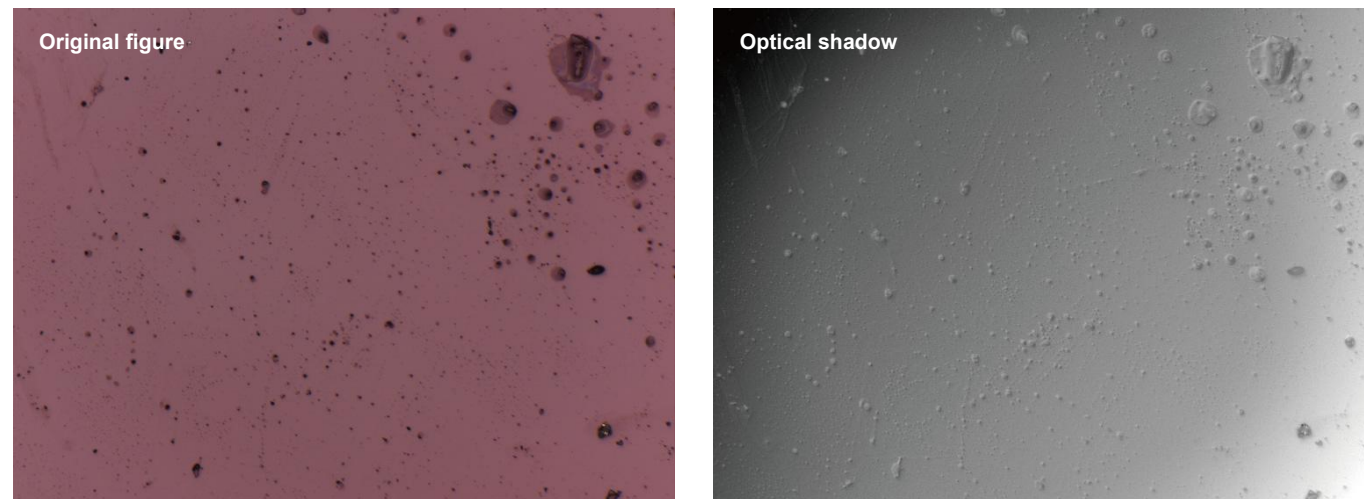
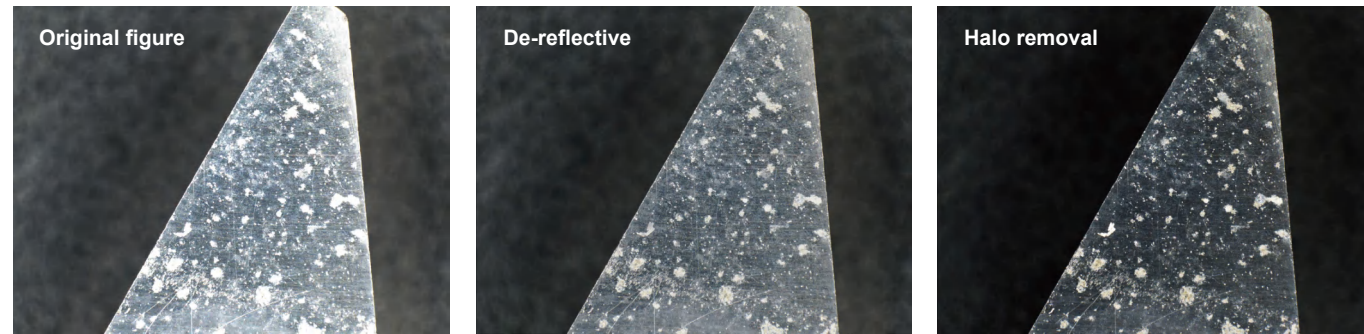


⦿ Setting the wide-angle display

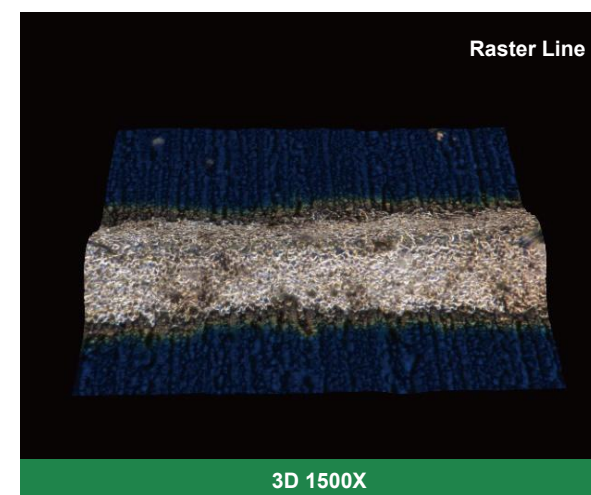
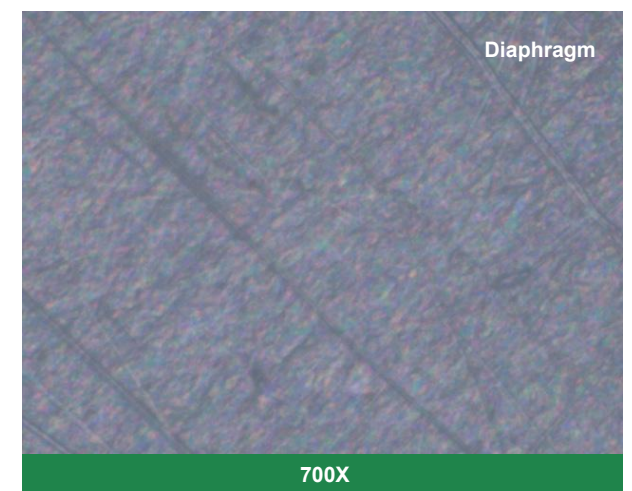
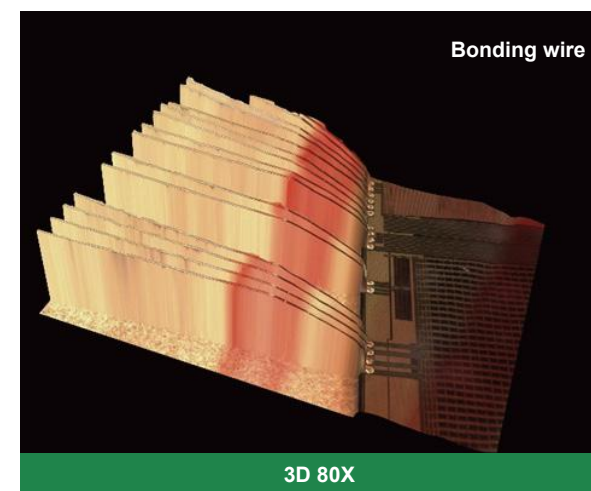
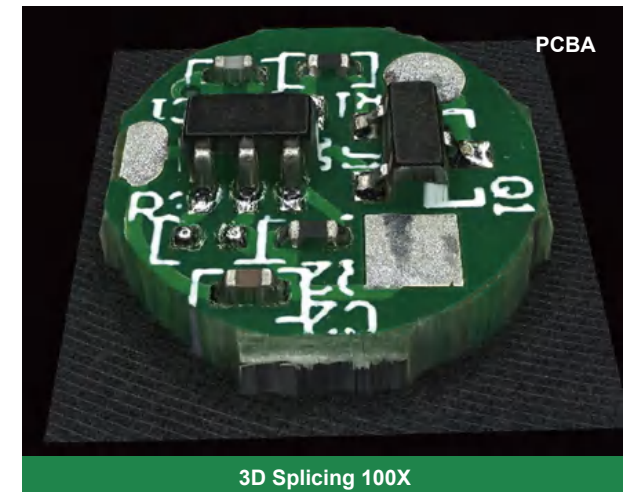
With the image enlarged, you can drag the green display area box to the position you want to observe. When you click match, the viewing window displays the entire image.

Picture Quality Improvement

The Picture Quality Enhancement function significantly enhances image clarity or removes the effects of reflections, helping to detect small defects, structural changes or anomalies.



Application Scenario



Specification

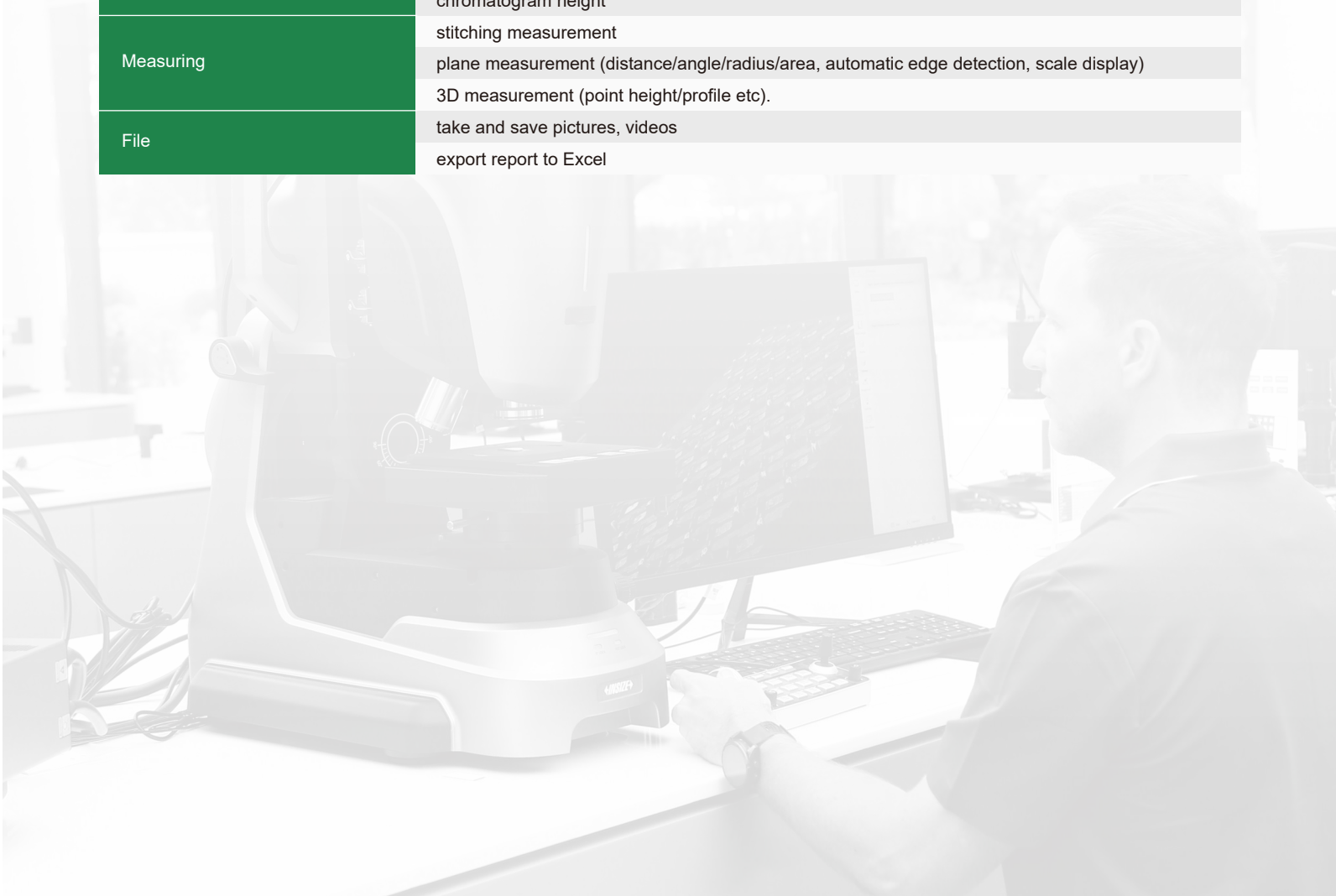
Magnification		30X~6000X
		(30X、40X、50X、80X、100X、150X、200X、300X、300X、400X、500X、700X、1000X、1500X、2000X、2500X、4000X、5000X、6000X) , 5000X and 6000X are digital magnification
Objective		1.5X, 5X, 20X, 50X
Horizontal resolution		0.42μm
Maximum depth of field		30mm
Working distance		2~30mm
Max. height of workpieces		90mm
View field		50.60×38.00μm~9977.30×7483.00μm
Accuracy		±(0.5+0.005L)μm (L is measuring length or height in μm)
Illumination		bright field (full/zoned), dark field (full/zoned), hybrid lighting, projected lighting
Light source life		LED, lifespan about 40,000 hours
Maximum viewable pixel size		2D: 5 billion pixels, 3D: 2.5 billion pixels
Tilting angle range		-89°~+89°
Camera	sensor	1/1.7"CMOS
	pixel	12.22M (4168×3062)
	frame rate	30fps
	resolution	quick: 2048×1536, standard: 2880×2160, high resolution: 4000×3000, high definition: 8000×6000/12000×9000
Display	size	27"
	screen size	596.736×335.664mm
	pixel pitching	0.1554×0.1554mm
	resolution	3840×2160
Motorized stage	movement axis	X、Y、θ axis
	range	40×40mm
	size	228×204mm
	moving speed	10mm/s
	resolution	1μm
	θ angle of rotation	-90°~+90°
	max. weight of workpiece	5kg
Upper Z-axis	control mode	motorized
	moving speed	16.5mm/s
	resolution	0.1μm
	range	50mm
Lower Z-axis	control mode	motorized
	resolution	1μm
	moving speed	6mm/s
	range	50mm
Power supply		220V
Dimension (L×W×H)		600×320×710mm
Weight		70kg

Standard Delivery

Main unit	1 pc
Computer	1 pc
Glass calibration plate	1 pc
Anti-dust cover	1 pc
16G USB flash disk	1 pc

Software Function

Imaging	2D imaging, 3D imaging
	adjustable elimination of reflection
	adjustable elimination of ring halos
	HDR, adjustable brightness/contrast/color difference
	optical shadow
	jitter correction
	2D stitching, 3D stitching
Measuring	fast 3D synthesis, high precision 3D synthesis
	chromatogram height
	stitching measurement
	plane measurement (distance/angle/radius/area, automatic edge detection, scale display)
File	3D measurement (point height/profile etc).
	take and save pictures, videos
	export report to Excel





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