

MATERIALS SCIENCE

Precision Made Simple

DSX2000 Digital Microscope



Advanced Microscopy Designed for Every User

Precision Meets Simplicity

The DSX2000 fully motorized digital microscope simplifies tasks, boosts productivity, and streamlines work for researchers and QC lab professionals with smart tools, all-in-one imaging, and a customizable interface.



The DSX2000 microscope with PRECiV™ software empowers your team to achieve fast, precise results and capture exceptional images. It provides an intuitive, seamless experience, enabling users of all skill levels to operate it with ease and confidence.

- **Simplify Operations with an All-in-One Solution**
Get fast, reliable results with a fully integrated system for imaging, measurement, analysis, and reporting.
- **Improve Productivity with Smart Tools**
Speed up inspections with custom workflows and AI-assisted analysis.
- **Assurance in Your Images and Measurements**
See fine sample details in high resolution beyond 4K.



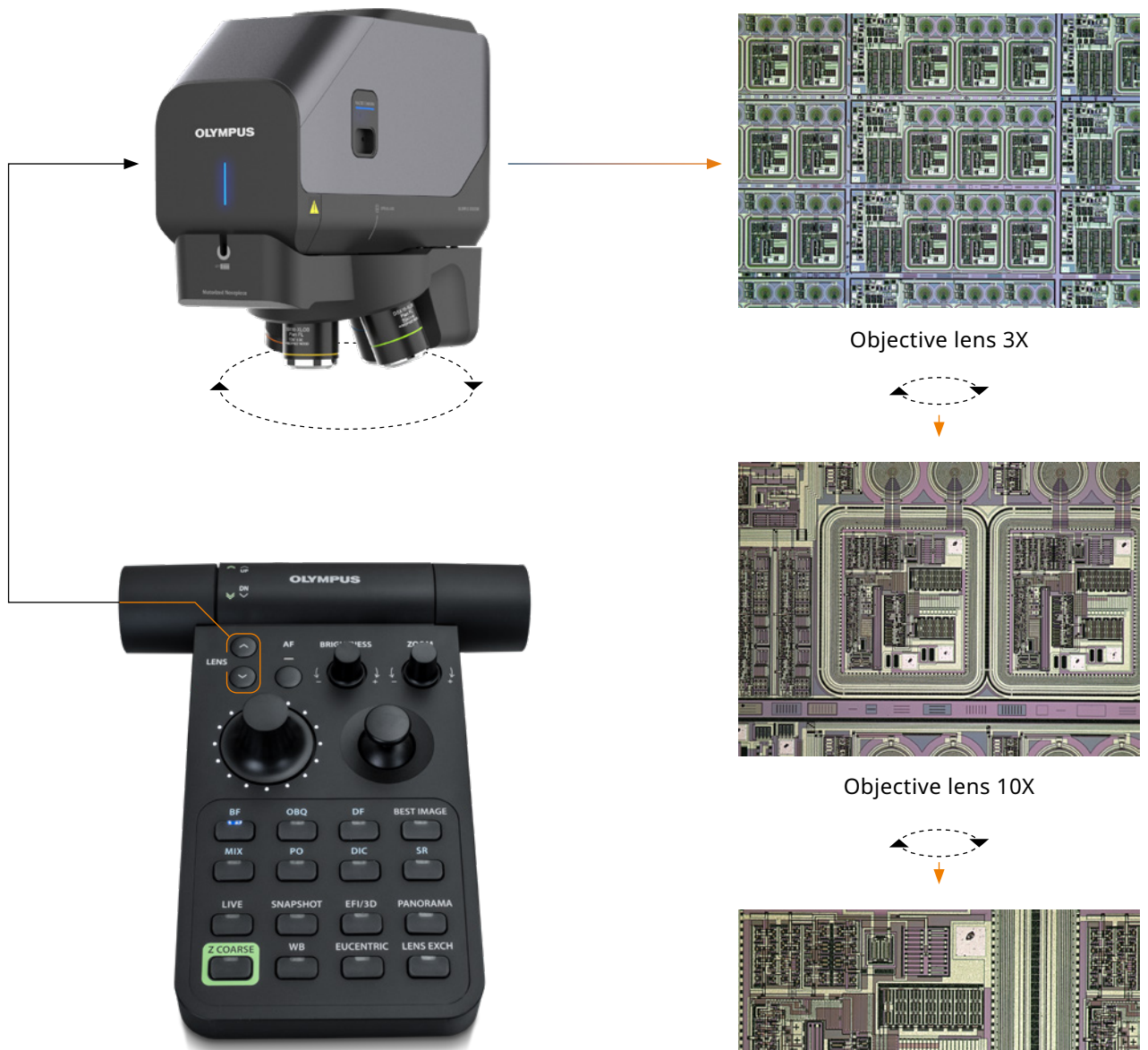
Simplify Operations with an All-in-One Solution



Fast Macro to Micro Imaging

The DSX2000 digital microscope offers a wide magnification range of 26X–7,300X using optical zoom, enabling you to complete macro and micro inspections with one system. By providing reliable results easily, the system frees up valuable time to focus on the work that matters most. Get inspection results with minimal training or quick, accurate answers to your research questions.





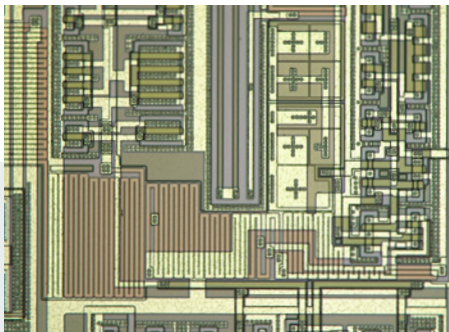
Switch Objectives Automatically

Quickly and easily change objectives using the motorized zoom head with an automatic revolving nosepiece. You can control the nosepiece from either the console or your computer. The easy-to-replace lenses and adjustable settings in an ergonomic system let you work faster and maintain comfort.

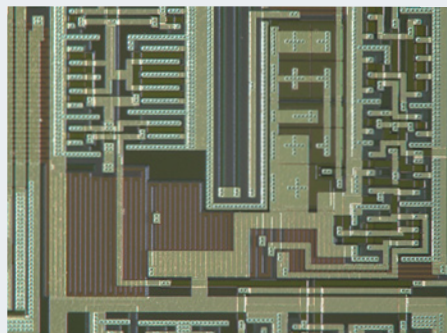
Simplify Operations with an All-in-One Solution

See What Matters **with One Click**

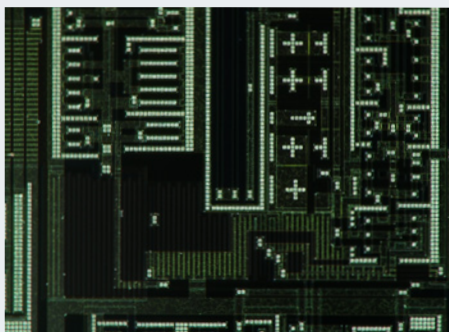
The DSX2000 microscope offers seven different observation methods at the click of a button. Find optimal viewing conditions using brightfield, darkfield, MIX (darkfield + brightfield), polarization, oblique, differential interference contrast, or our unique shaded relief method.



BF Brightfield



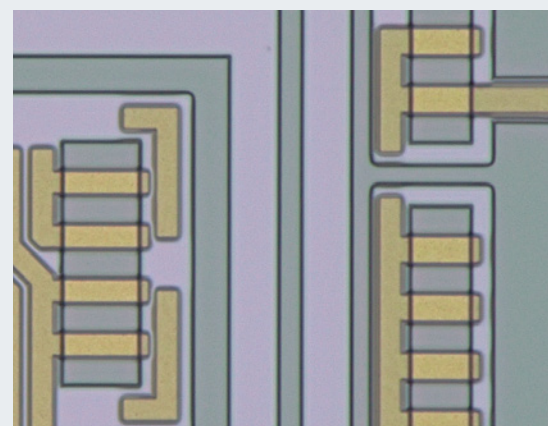
MIX Brightfield + Darkfield

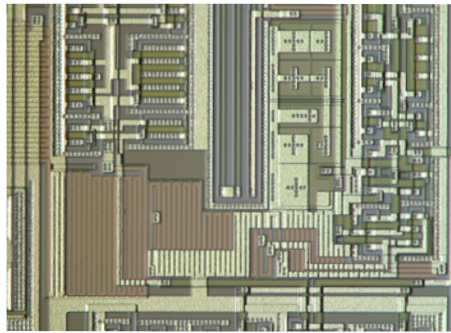


PO Polarization

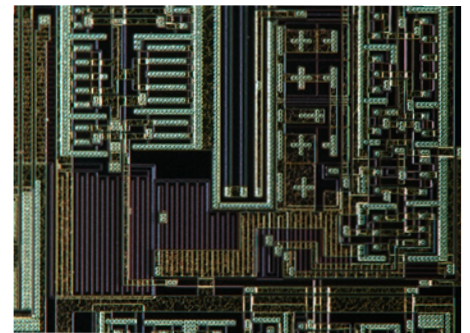


BF Brightfield

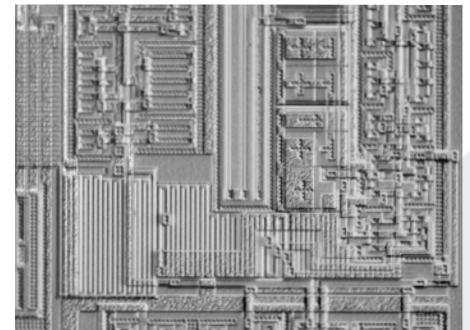




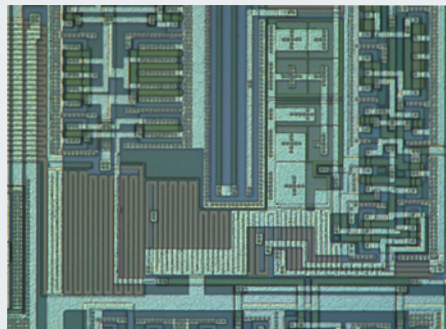
OBQ Oblique



DF Darkfield

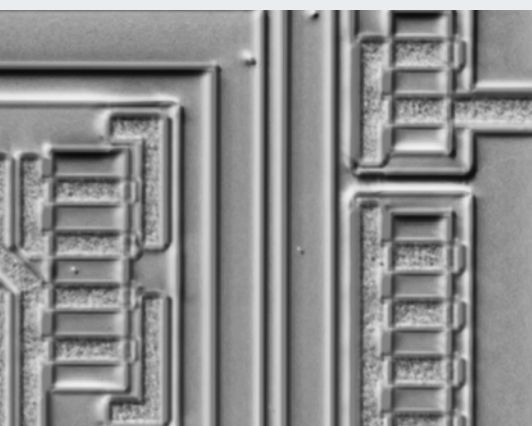


SR Shaded relief



DIC Differential interference contrast

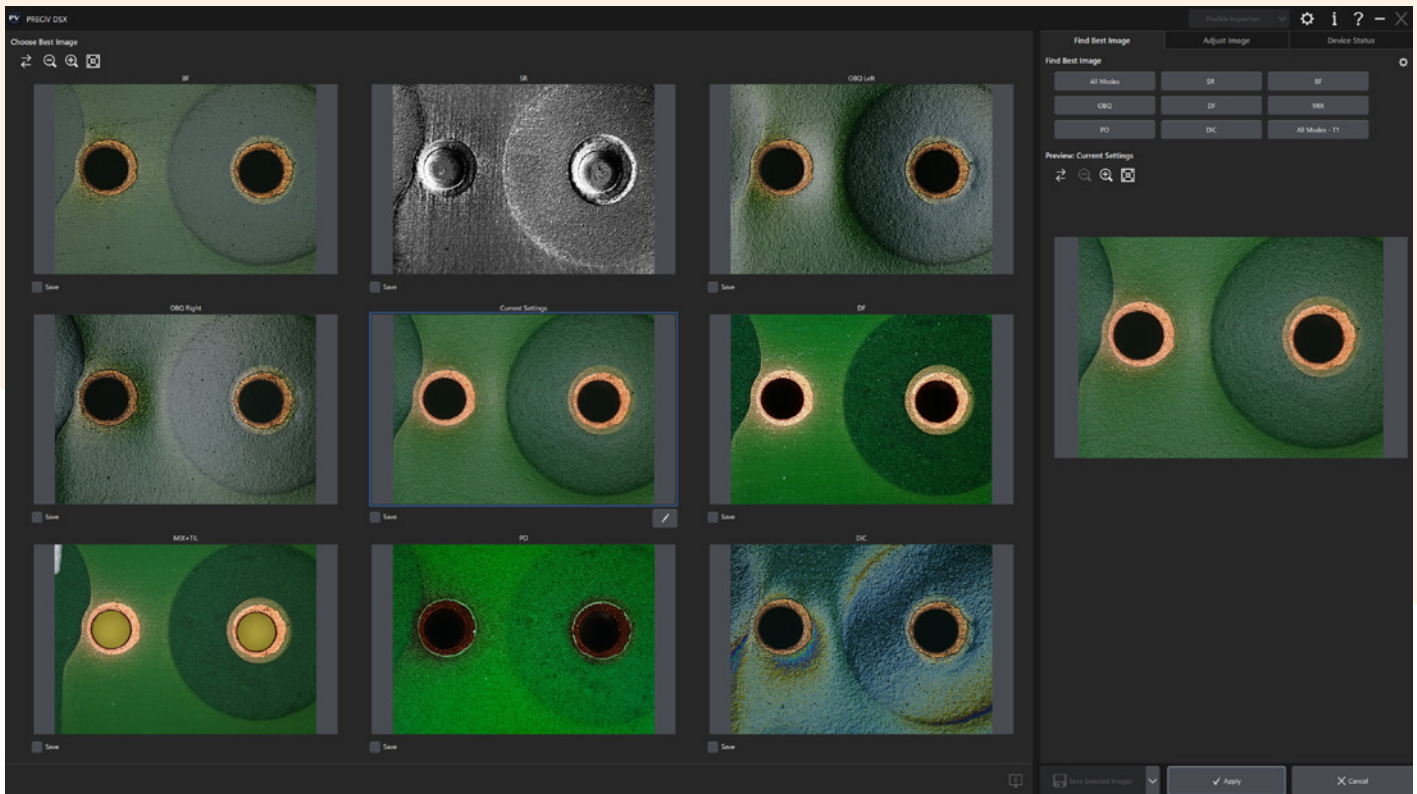
SR Shaded relief



Shaded Relief Observation Mode

Reveal ultra-fine, hard-to-see defects in real time, without post-processing delays. Move the stage and scan your sample seamlessly, viewing shaded relief images instantly for fast, thorough inspections.

Simplify Operations with an All-in-One Solution

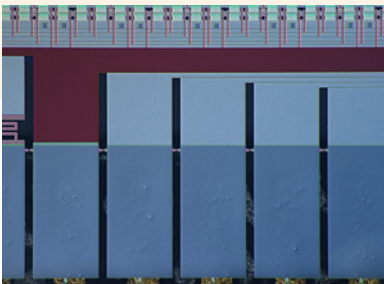


Find the Best Image, Fast

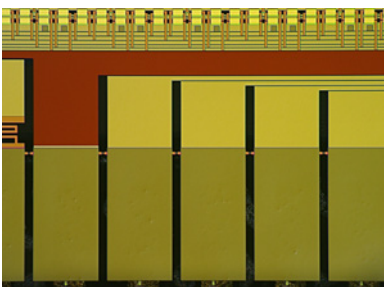
The best image function reviews all available observation methods for your sample and identifies the best imaging mode for revealing what needs to be seen—all with a simple click.

Save and Recall Observation Conditions

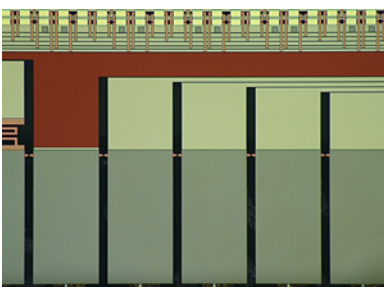
Captured images automatically record their settings, so you can easily recall and reuse conditions with a single click for consistency and repeatability.



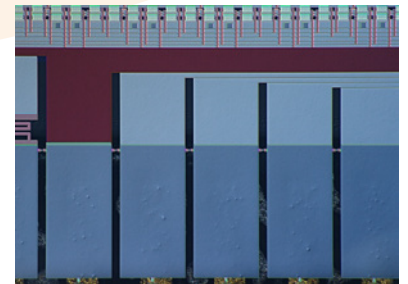
Sample 1 (ideal setting)



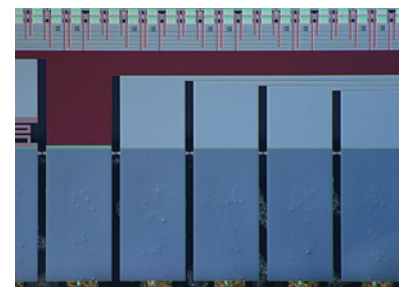
Sample 2



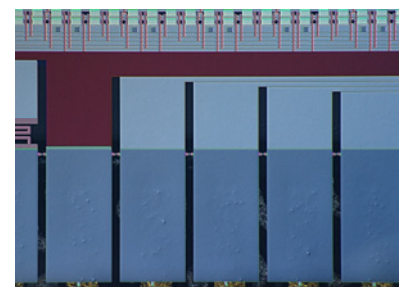
Sample 3



Sample 1



Sample 2



Sample 3

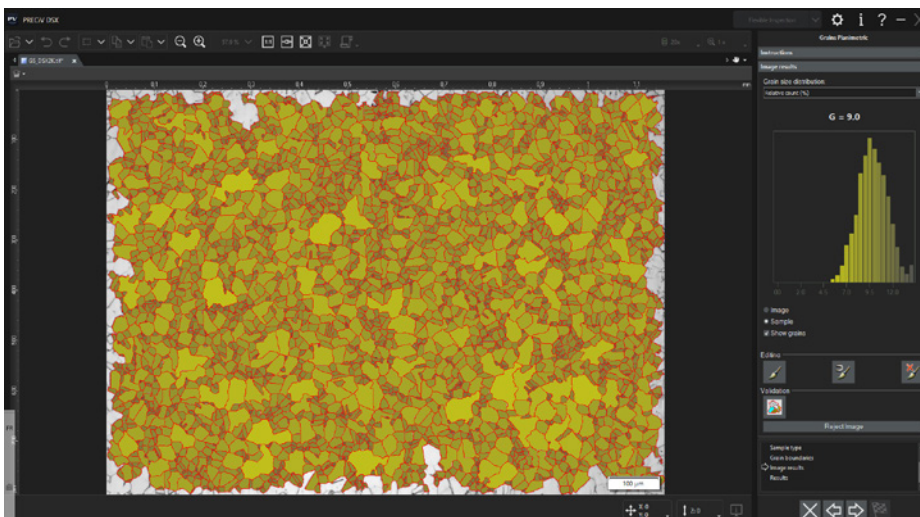
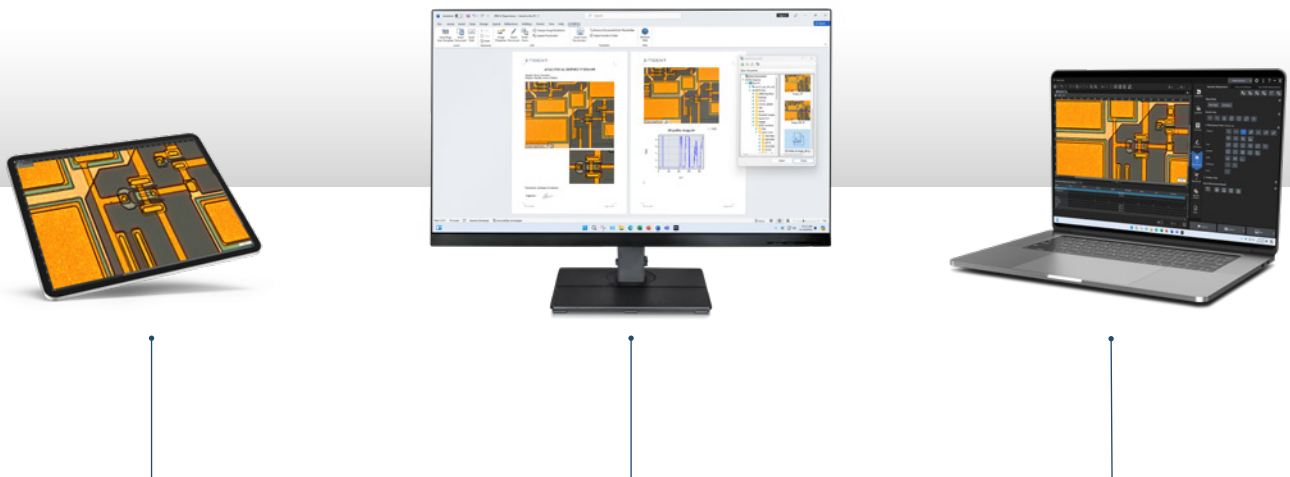
Simplify Operations with an All-in-One Solution

Simplify Tasks **with Unified Software**

Pair the DSX2000 system with PRECiV™ image analysis software to maximize efficiency. PRECiV software operates the same way on the DSX series as it does on all our industrial microscopes, creating a cohesive analysis environment in a unified software package.

Maximize Throughput

Analyze images on any PC equipped with PRECiV software. This frees up the DSX2000 microscope for image acquisition, increasing workflow efficiency.

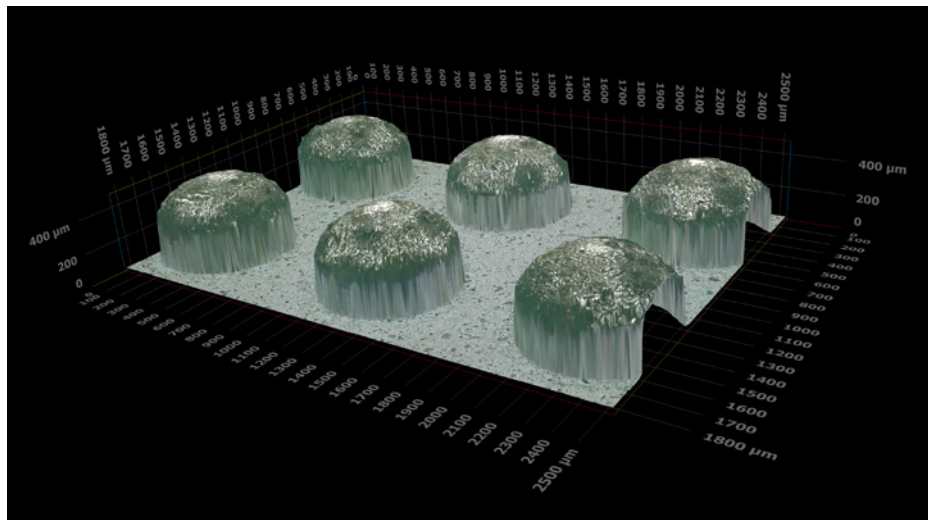


Compliant Measurements in a Few Clicks

Simplify daily tasks for material analyses with standard-compliant automated workflows. Choose from options for grain sizing, cast iron analysis, phase analysis, non-metallic inclusion rating, and more.

Easier Imaging, Measurement, and Analysis

Access tools for 2D/3D measurements, image enhancement, macro recording, AI-assisted analysis, and more.



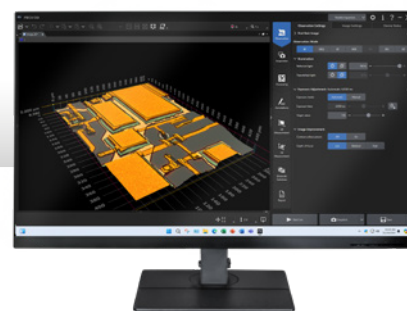
Create Compliant Reports Easily

When it's time to present your results, the DSX2000 microscope makes reporting easy. Use the plug-in for Microsoft 365 to design your own reports in Microsoft Word, Excel, or PowerPoint.



Seamless Network Integration

Easily connect the DSX2000 microscope to your company network for IT compliance and quick image sharing.



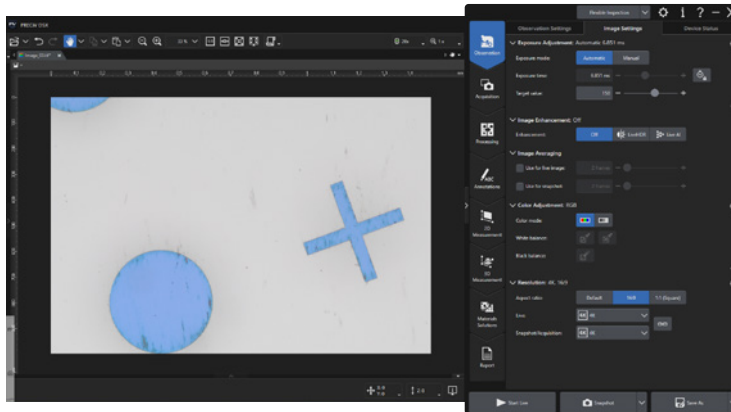
Improve Productivity with Smart Tools

Customized Workflows for Faster Operation

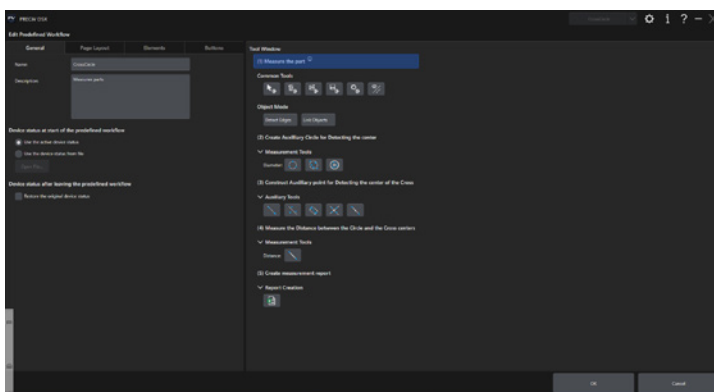
EZ

The Power to Work Smarter

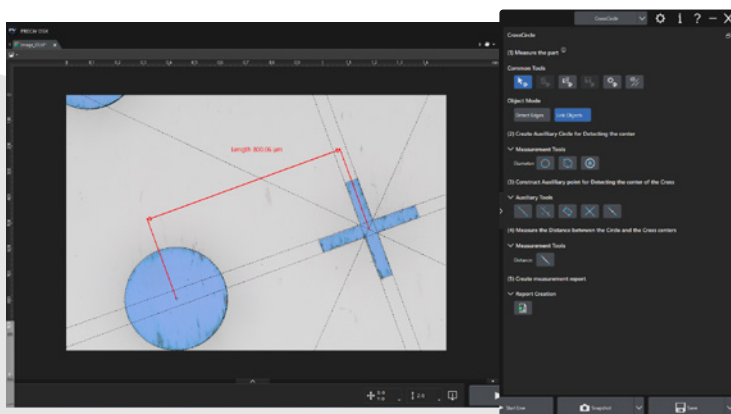
Customized workflows and AI capabilities on the DSX2000 digital microscope give you the power to work smarter, unlocking more efficient ways to perform routine inspections or conduct complex analyses.



Define your workflow



Arrange the icons



Activate the workflow

Automate Repetitive Tasks

Automate live measurements, edge detection, and other repetitive processes, minimizing operator input and variability while speeding up inspections.

Collect Data Quickly

Powerful interactive measurement tools include edge-detected circles, magic wand, auxiliary lines, object linking, and more.

EZ mode simplifies the interface by displaying only essential functions. Supervisors can create custom workflows for operators, limiting available buttons for consistency and ease of use. Operators can get to work quickly with minimal training while reducing the potential for errors.

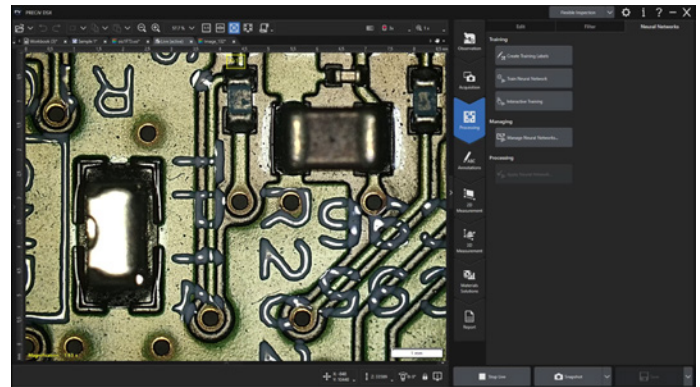
Unlock Efficiency with AI

PRECiV™ image analysis software equips all Evident industrial microscopes—including the DSX2000 system—with our unique Live AI.

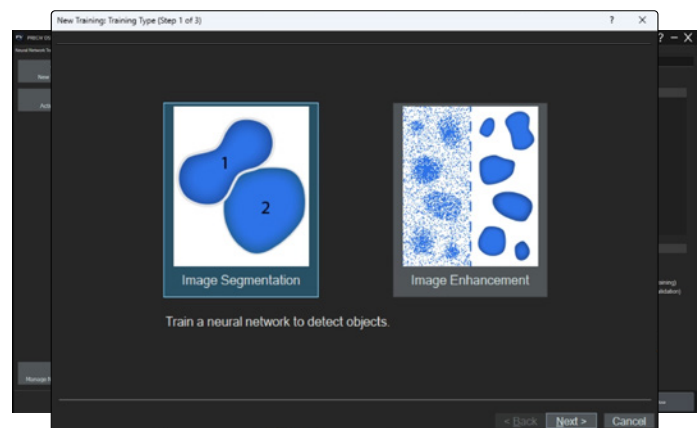
This powerful tool instantly reveals hidden details and highlights key features on live images without the need for additional processing.

AI-assisted decision-making frees your experts from the need to double-check images.

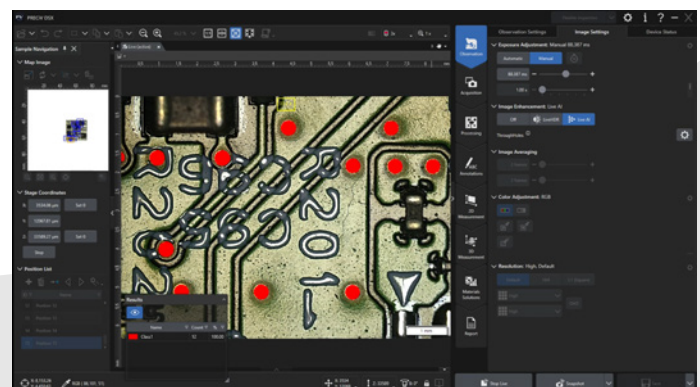
AI



Live image



Train the neural network (5 minutes)

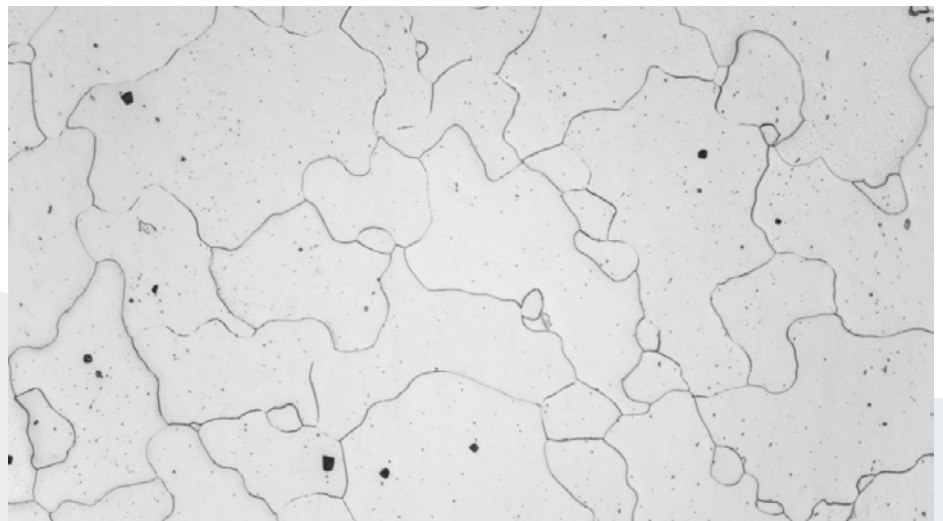


Apply the neural network to the live image

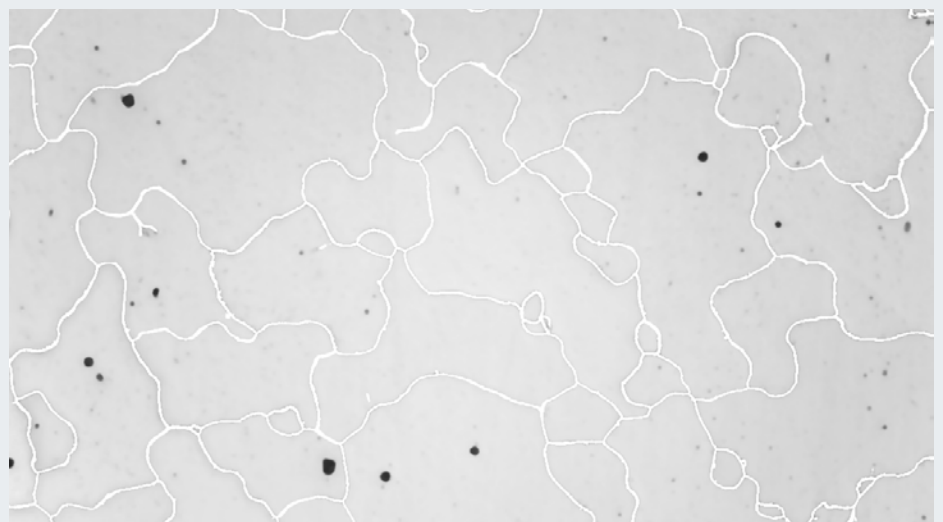
Improve Productivity with Smart Tools

Eliminates unimportant scratches or elements that could obscure critical information or be mistakenly counted by the AI.

Automatic Image Improvement



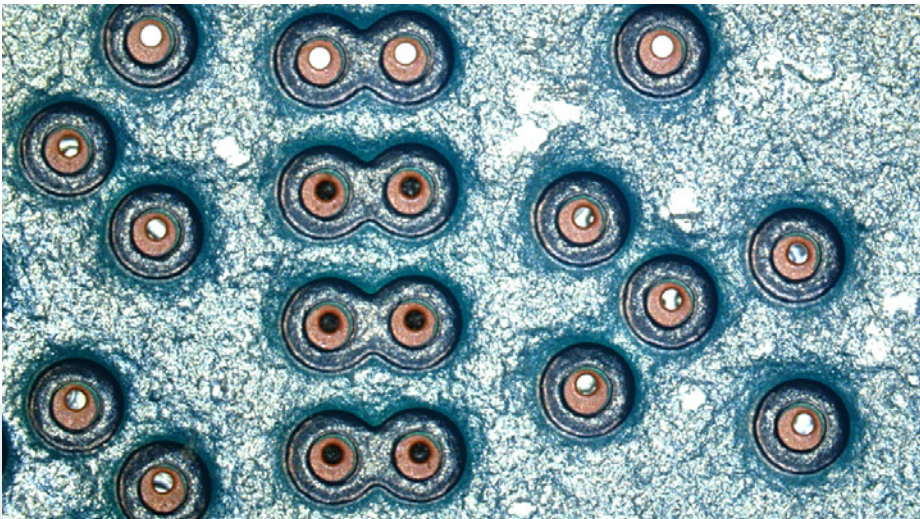
Steel microstructure



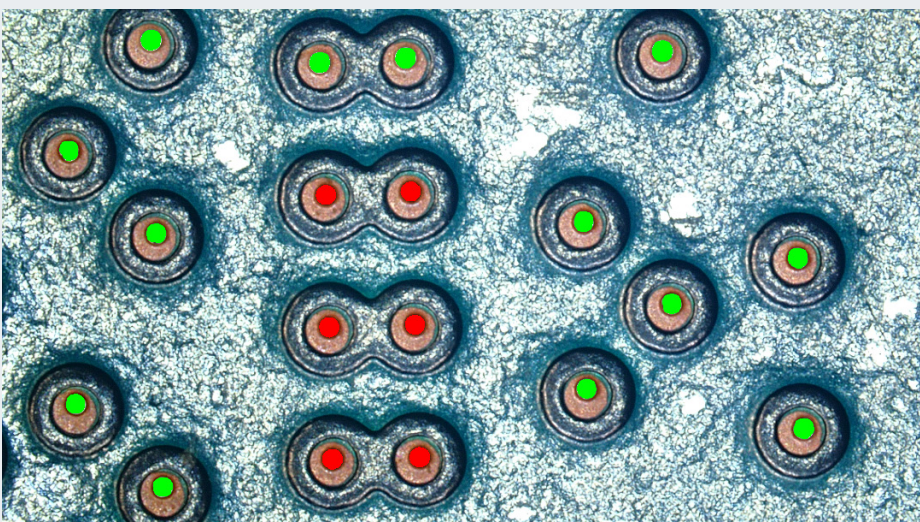
Live contrast enhancement with grain boundaries highlighted

Image segmentation enables the AI, with minimal training, to identify and count different object types in your sample.

Automatic Object Discrimination



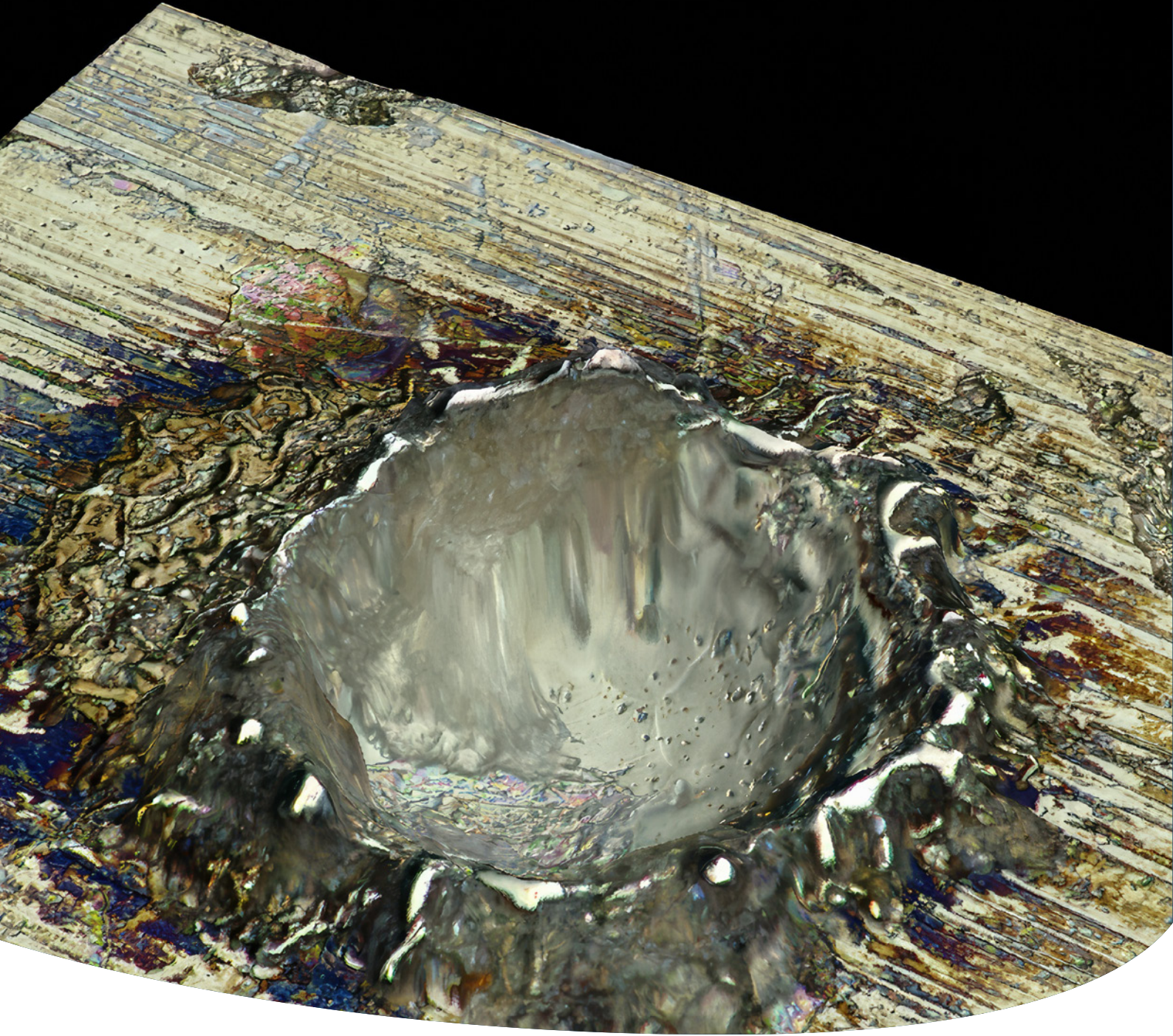
Through holes in printed circuit board



Live detection of filled through holes and empty through holes

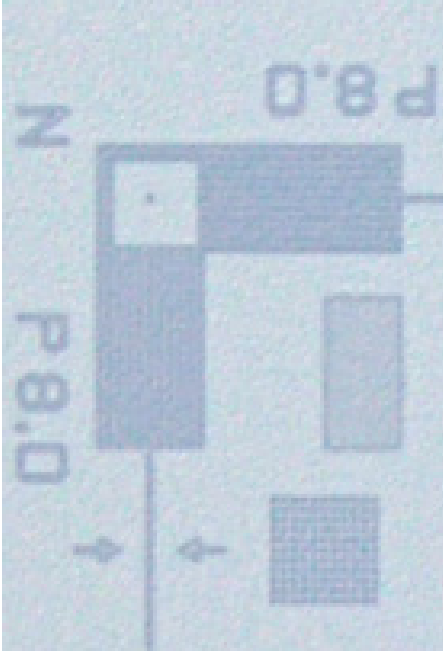


Assurance in Your Images and Measurements



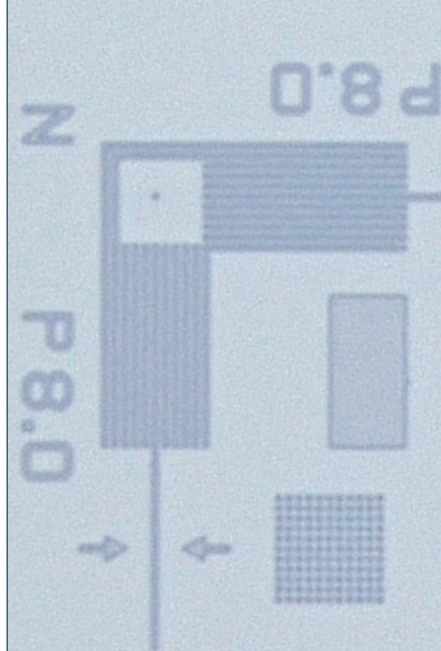
Confidence in Every Detail

Be confident in your results knowing that the DSX2000 digital microscope produces exceptional images and precise measurements that meet the exacting demands of quality control, failure analysis, and R&D.



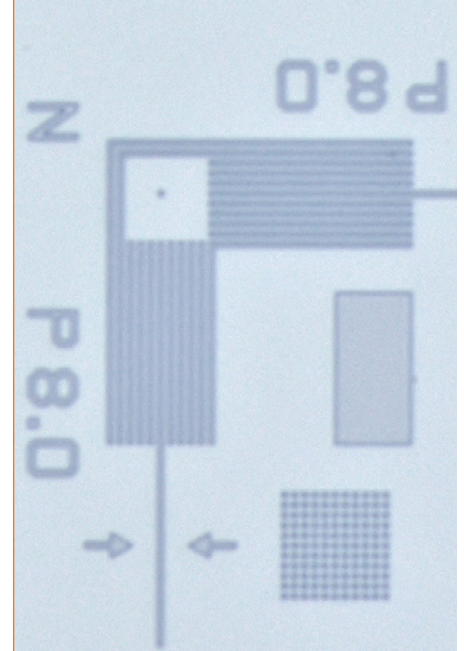
Full High Definition Mode

HD



4K Mode

4K



Ultra Mode

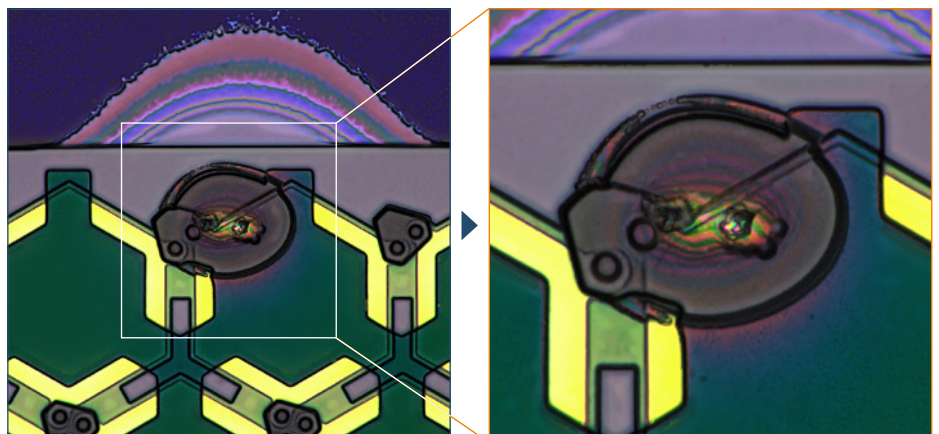
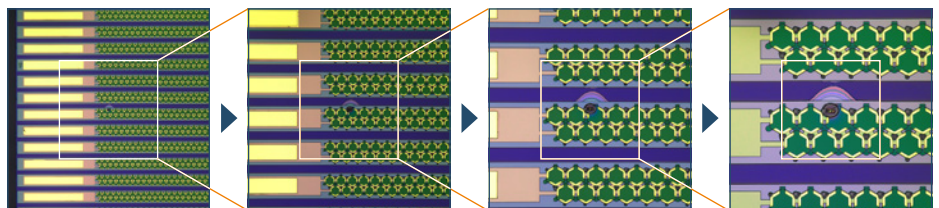
8K

High-Resolution Imaging Beyond 4K

The DSX2000 microscope empowers inspections with image quality that surpasses standard 4K resolution, delivering enhanced clarity and coverage across sample types—whether large, thin, thick, rough, reflective, or transparent. Pair the system with a 32-inch 4K monitor to further enhance sample details for observation and analysis.

See the Whole Picture

Use the wide field of view with high resolution to observe large areas of your sample, then quickly resolve down to examine submicron details or defects.



Assurance in Your Images and Measurements

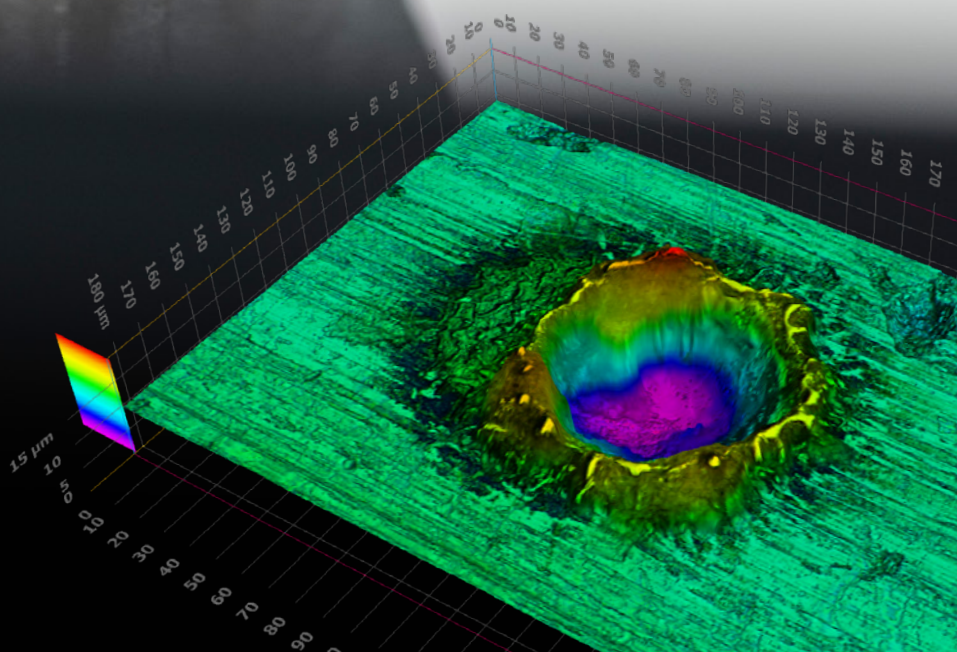


Flexible Optics

Our extensive line of dedicated objectives provides the wide magnification range (26X–7,300X) and working distance needed for inspections, whether you're investigating the cause of a failure or doing a routine quality check.

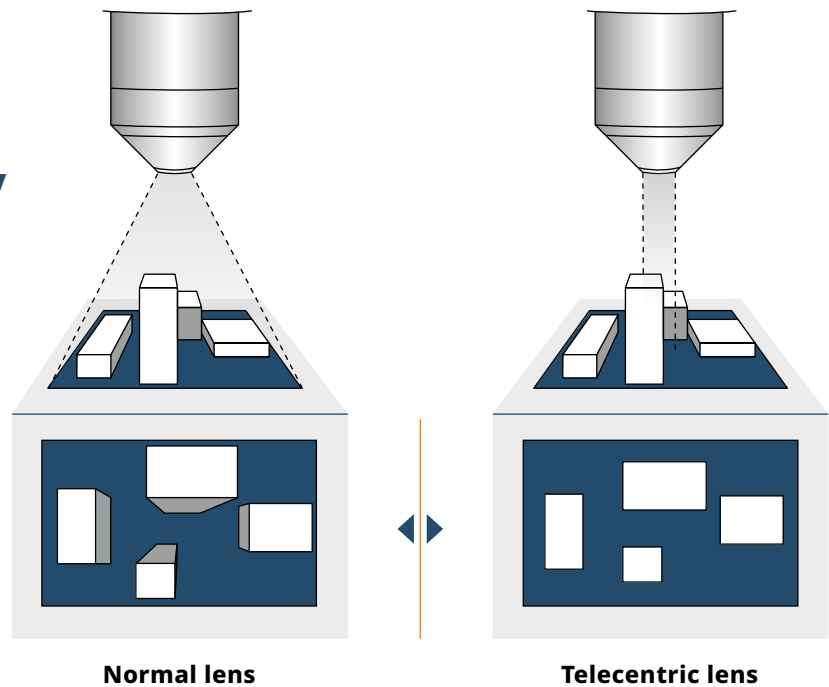
Advanced 3D Measurements

Get detailed insights into surface heights and features with precise 3D analysis for complex inspections.



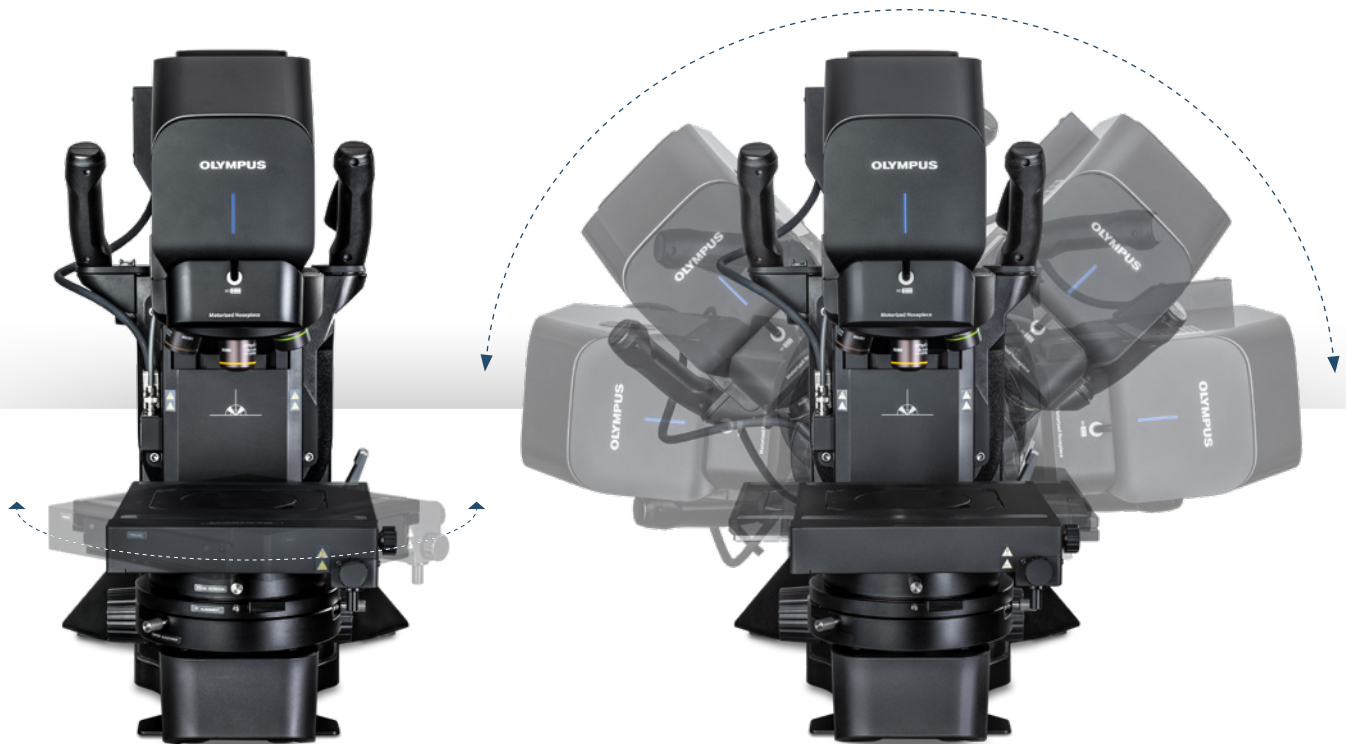
Guaranteed* Accuracy and Repeatability

Telecentric optics and traceable, time-stamped calibration from Evident technicians provide precision and easy alignment with your metrology standards.



Unlimited** Image Size

Seamless stitching quickly creates large macro images, enabling analysis of large samples in less time.



Free-Angle Observation

*To guarantee accuracy and repeatability, the calibration must be performed by an Evident service technician.

**Image size is only limited by hard drive space.

The extended stage (up to 200 × 100 mm) accommodates multiple or large samples, while the tilting frame and rotating stage enable you to place your sample in the best observation conditions.

DSX2000 Specifications

	Head	DSX20-MZH				
Optical system	Optical system	Telecentric optical system				
	Optical zoom ratio	From 1X to 10X				
	Optical zoom magnification method	Motorized				
	Calibration	Automatic				
	Nosepiece	Motorized revolving nosepiece				
	Number of objectives that can be attached	Up to 4 high resolution objectives				
	Accuracy and repeatability (X-Y plane)	Accuracy *1	±3%			
	Repeatability (Z axis) *2	Repeatability 3 σn-1	2%			
Camera	Repeatability (Z axis) *2	Repeatability σn-1	1 μm			
	Image sensor	1.1-inch 12.37-megapixel color CMOS image sensor, global shutter				
	Cooling	Peltier cooling				
	Frame rate	60 fps (maximum)				
	Ultra (pixel shift mode)	6000 × 6000 (1:1), 8192 × 6000 (4:3)				
	Super high (3CMOS mode)	3000 × 3000 (1:1), 4096 × 3000 (4:3)				
	Super high	3000 × 3000 (1:1), 4096 × 3000 (4:3)				
	4K mode	3840 × 2160 (16:9)				
Illumination	High	1500 × 1500 (1:1), 2048 × 1500 (4:3)				
	High (binning 2 × 2)	1500 × 1500 (1:1), 2048 × 1500 (4:3)				
	Full HD mode	1920 × 1080 (16:9)				
	Color light source	LED				
	Lifetime	60,000 h (design value)				
	Observation	BF (brightfield)	Available			
		OBQ (oblique)	Available			
		DF (darkfield)	Available, LED ring divided into four divisions			
MIX (brightfield + darkfield)		Available, simultaneous observation of BF + DF				
PO (polarization)		Available				
DIC (differential interference contrast)		Available				
SR (shaded relief)		Available				
Mechanical aperture for contrast settings		Available				
Focus	Mechanical aperture for depth of focus	Available				
	Focusing	Motorized				
	Stroke	75 mm (motorized)				
	Objective lens	DSX10-XLOB	UIS2			
Objective lens	Maximum sample height	71 mm	101 mm			
	Maximum sample height (free angle observation)	50 mm	50 mm			
	Parfocal distance	75 mm	45 mm			
	Total magnification *3	43.8X–5845X	26.1X–7307X			
	Actual FOV	8700×6300μm-649×47.6μm	14500 × 10700 μm - 51.9 × 38 μm			
	Stage	DSX20-TMTS	DSX20-RMTS	DSX20-LMTS	U-SIC4R	
Stage	XY stage: motorized/manual	Motorized	Motorized	Motorized	Manual	
	XY stroke	100 × 100 mm	Stroke priority mode: 100 mm × 100 mm Rotation priority mode: 50 mm × 50 mm	200 × 100 mm	100 × 105 mm	
	Transmitted lighting	Integrated (PO, DF, BF, OB modes optional)	Not available	Not available	Not available	
	Rotation angle	Not available	Available Stroke priority mode: ±20° Rotation priority mode: ±90°	Not available	Not available	
	Display rotation angle	Not available	GUI	Not available	Not available	
	Maximum load capacity	5 kg (11 lb)	5 kg (11 lb)	5 kg (11 lb)	1 kg (2.2 lb)	
	Frame	Frame	DSX20-UF	DSX20-TF		
Z-axis stroke		50 mm (manual)	50 mm (manual)			
Tilt observation		Not available	Available: ±90°			
Tilt angle display		Not available	GUI			
Tilt angle method		Not available	Manual, fix/release handle			
	Display					
Display	Screen size	27 inch / 32 inch				
	Resolution	Full HD: 1920 × 1080; 4K: 3840 × 2160				
	System total	Upright frame system	Tilt frame system			
System total	Weight (frame, head, motorized stage, display, and console)	54.7 kg (120 lb)	51.7 kg (113 lb)			
	Power consumption	100–120 V / 220–240 V, 1.1/0.54 A, 50 Hz/60 Hz	100–120V / 220–240 V, 1.1/0.54 A, 50 Hz/60 Hz			
	Software					
PRECiV DSX	Included: device control, video recording, time-lapse imaging, large panorama acquisition, extended focus imaging, 3D image acquisition, Z-stack acquisition, position list navigation, best image function, extended 2D measurements, 3D measurements, reporting tools, neural network processing, macro recorder					
Operating system	Windows 11-64 bit					
Network connectivity	Compatible with most popular antiviruses, Windows security updates allowed, images can be saved directly to OneDrive.					
Reporting application	Microsoft 365, Office 2021					
Optional software	Count and Measure, Neural Network Training, Materials Solutions (Grain Size, Cast Iron, Phase Analysis, Porosity, Particle Size Distribution, Non-Metallic Inclusions, Layer Thickness, Coating Thickness).					
Customization	Included: customizable user interface for predefined workflow creation Optional: wafer navigation, automated analysis on specific samples					

*1 Calibration by an Evident or a dealer service technician is necessary. To guarantee the accuracy of XY, calibration with a DSX-CALS-HR (calibration sample) is required.
*2 When used with a 20X or higher objective. *3 On a 27-inch 4K monitor, scale setting: 175%, anti-vibration mode: off, fit to window mode.