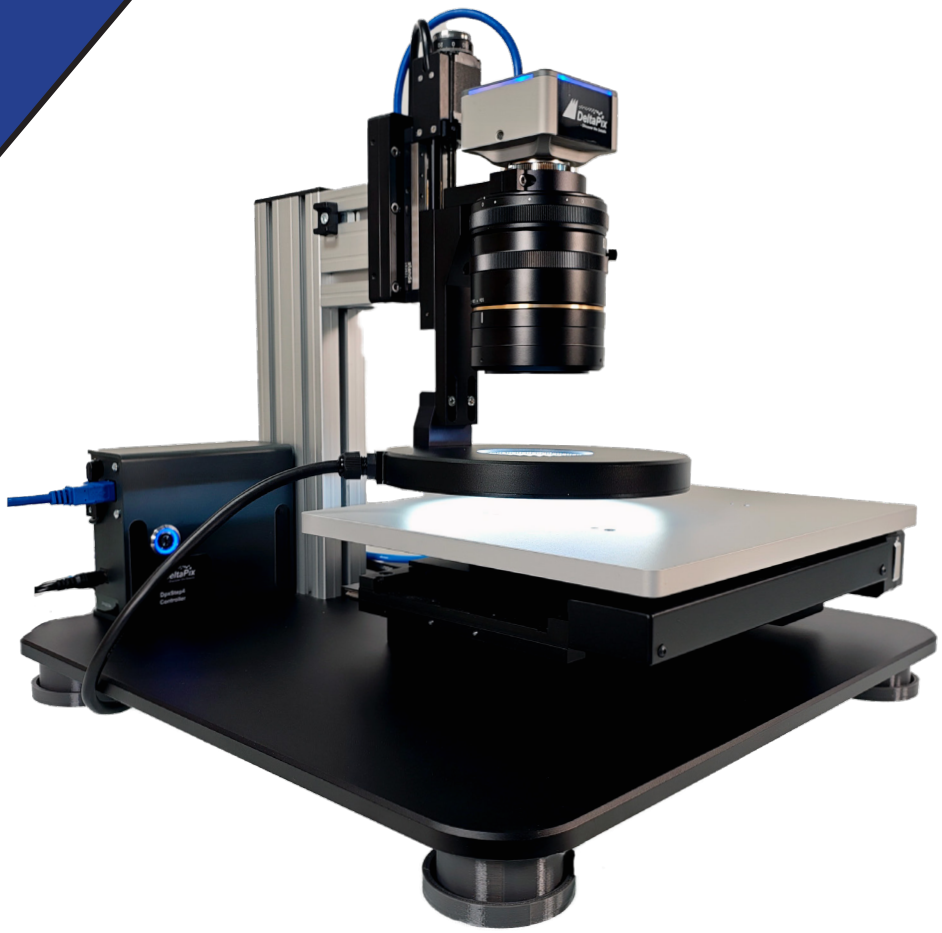
DeltaPix
- Discover the Details

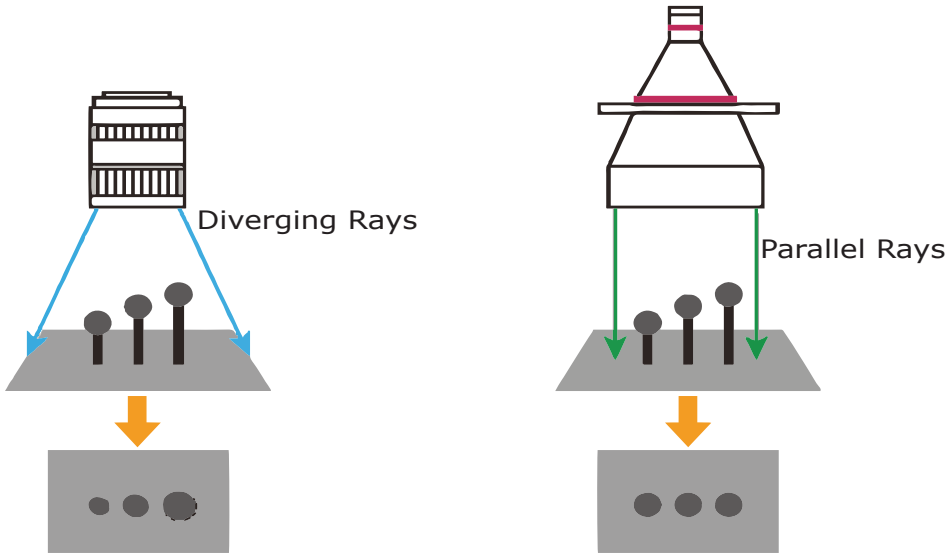
DeltaPix DPX M2000

High resolution 3D microscope for large Field Of View



- Super high resolution
- 3D topography
- 3D measurement
- 2D measurements
- Large field of view
- Super depth of field
- Auto stitching and scanning
- 3D stitching

High-resolution and Accurate Results with a telecentric lens.



Same-size objects seem different-sized due to the diverging rays in a non-telecentric lens.

Theoretical zoom range equals >“1-12x“

The optics and image quality of this microscope is far superior compared to most traditional “zoom” microscopes, even it “only“ has an optical zoom range of only 2x. Why?
A typical 12x zoom microscope, which should have the same max FOV as the DPX M2000 (26x18mm), would require a 0.5x objective (or less) and have a 1/2’ or 1/1.8‘ camera. Such a zoom system would typically have a resolution at the highest zoom position of 7µm. No matter the zoom ratio, digital or optical, the user won’t be able to see smaller details than 7µm. With the DPX M2000 its possible to separate details down to 3µm, at 1x zoom. By zooming digital in the software, these details can be seen with same magnification and size in DPX M2000, as with the 12x optical zoom microscope, but resolved much better. This is due to the high optical quality of the lens In DPX M2000. In addition, the DPX M2000 provide plane focus and resolution over the entire FOV, a feature hardly ever provided by any optical Zoom microscope, no matter the price.

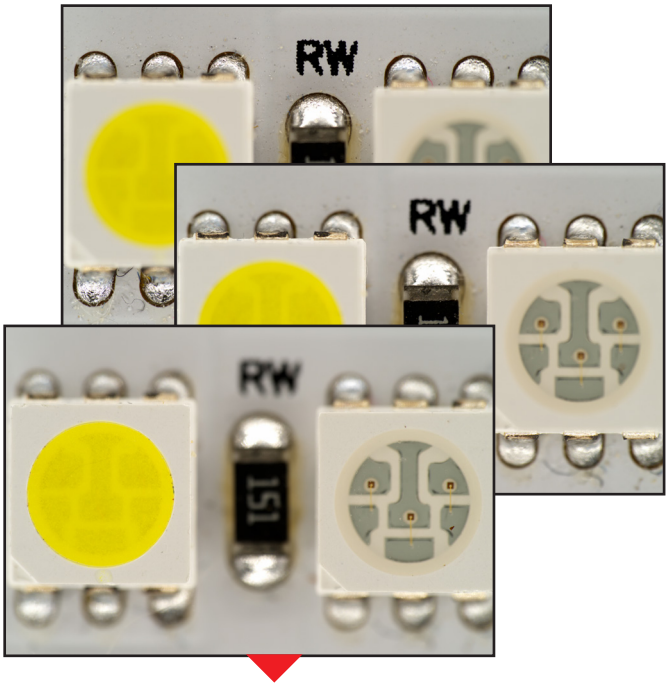
In addition to these superior properties, the DPX M2000 lens is telecentric, making the measurement on objects with different heights, very precise. This will not be the case with any non-telecentric optics (almost all zoom microscopes are non-telecentric).

Super Depth of Field

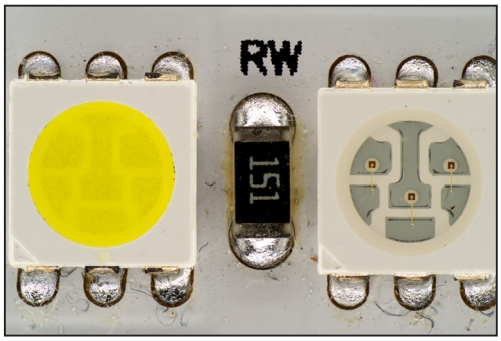
Super Depth of Field

DeltaPix microscopes can produce “Super depth of field”.

This extends the standard depth of field of the objective, by capturing images at different focal planes and using the state of the art algorithms.



Fully focused image merged

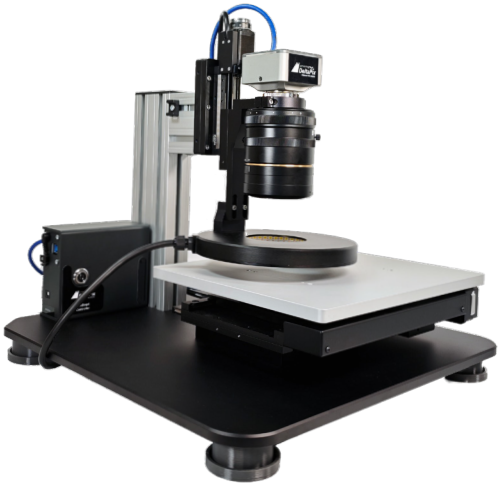


2D Measurements

DeltaPix microscopes offer accurate measurements on real-time video or captured images. The DeltaPix Insight software offers many powerful measuring tools including length, area, angle, diameter, and much more. In addition, the actual dimension and measurement results can be saved on the captured image or exported to Excel, CSV, or PDF files.

Export to Excel or PDF using the included templates or design a custom template.

Measurements on multiple specimens can be exported to one CSV file for statistical purposes.



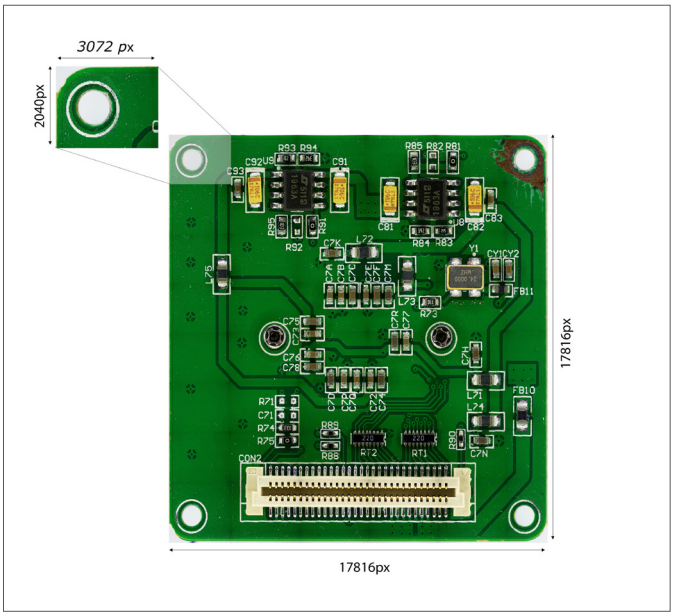
Stitching / Auto Stitching

The DPX M2000 stands out with its large field of view, offering high resolution, superior accuracy, and the flexibility to extend the field of view with a motorized XY stage. This model supports motorized XY stages up to 200mm x 200mm (larger versions on request), enabling extensive imaging capabilities and scanning large samples with microscopic resolution (better than 3µm in XY and Z).

The DPX M2000 simplifies image stitching, eliminating the need for user involvement in complex calculations. Simply move the stage to the two opposite corners of your region of interest using the joystick or keyboard, and the software handles the rest automatically. The result is a large, seamless field of view with impeccable microscopic details.

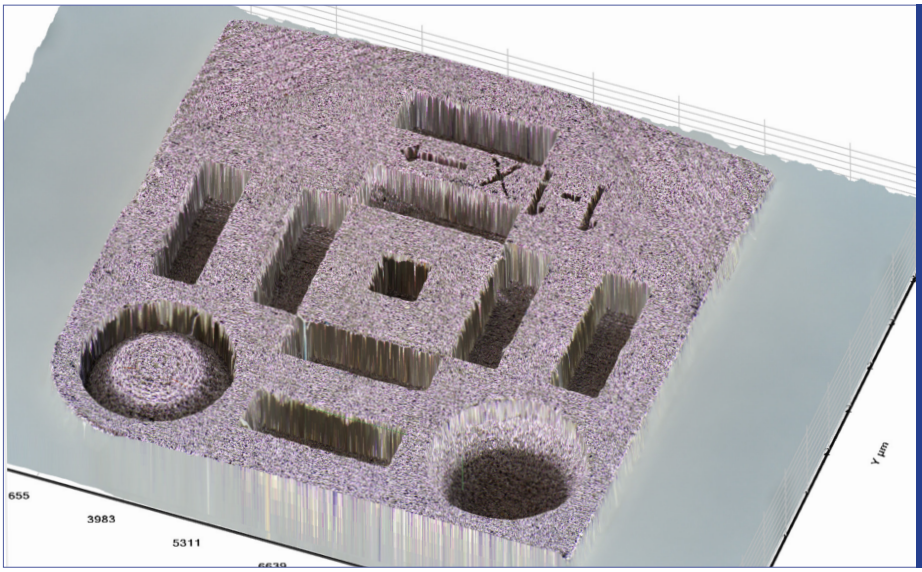
Key features include:

- Automatic stitching combined with extended depth of field
- 3D stitching
- Extended exposure options
- Autofocus functionality



3D Topography

Extend the visualization and measurement from 2D to 3D.



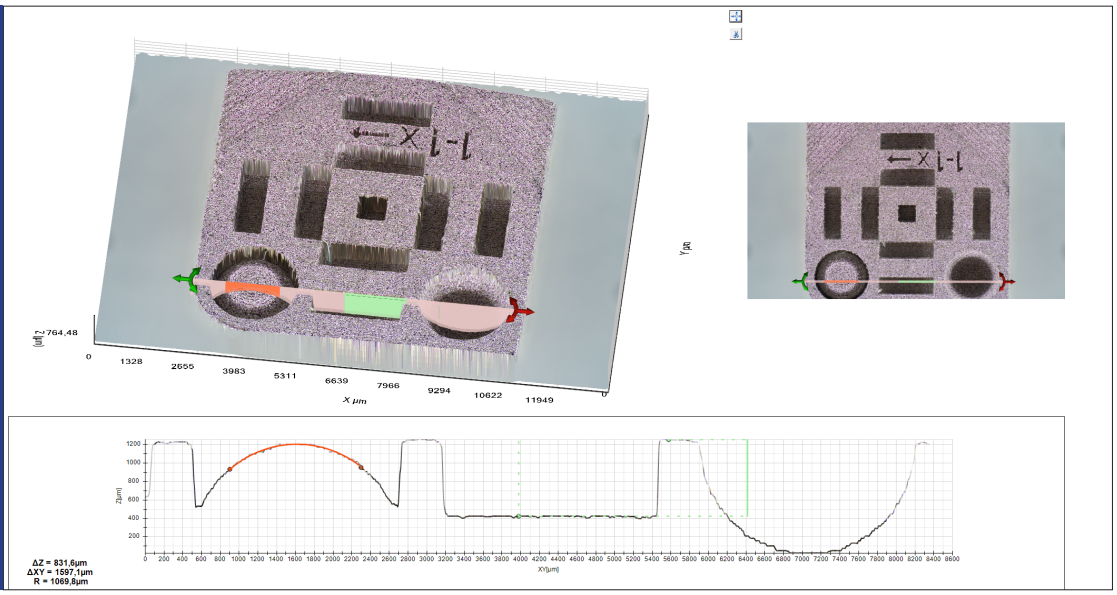
With the 3D module in DeltaPix InSight, it is possible to display a 3D model of the specimen under observation.
Displaying the 3D model in its true color, or pseudo color to better illustrate the height difference in the specimen againts a height scale.

3D Measurements

Comprehensive and intuitive 3D measurements.

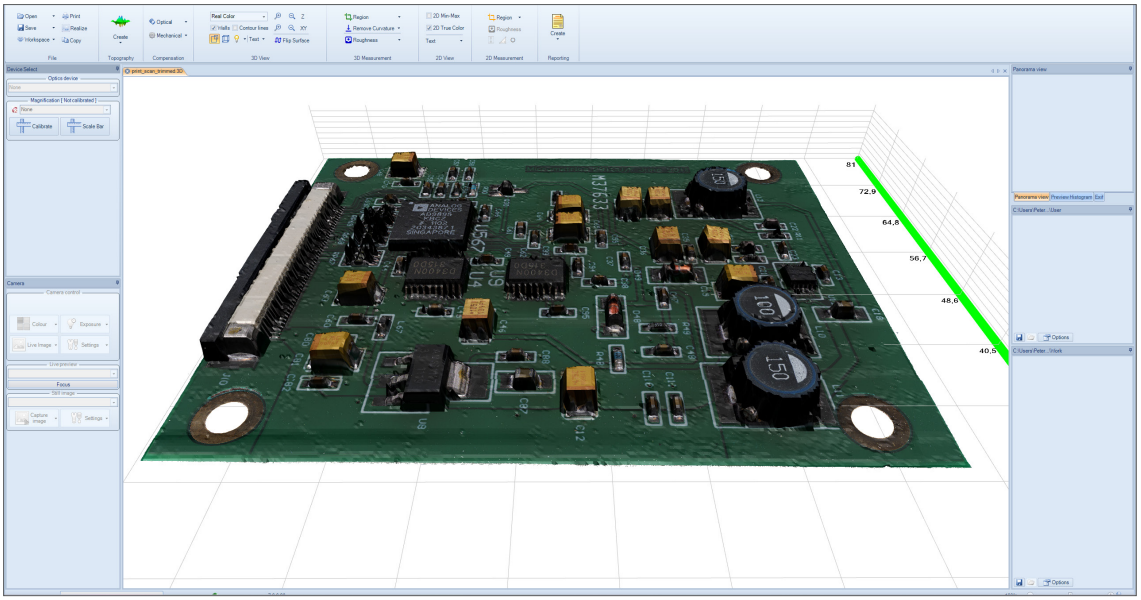
The DPX M2000 system is a fully capable 3D, surface analysis, and measurement system. 2D parameters like angle, distance, and area can easily be visualized and measured in 3D. Traditional 3D systems like confocal and scanning microscopes can struggle with complex surface topography, but the DeltaPix DPX M2000 systems, display all complex details in true color. The 3D capabilities are also available in the XY-scanning mode, so detailed 3D images can be captured automatically at pre-saved XYZ-positions for later analysis.

All new multi-view UI allows the user to see the 3D visualization of the sample, 2D image, and the image of the sample in the same window



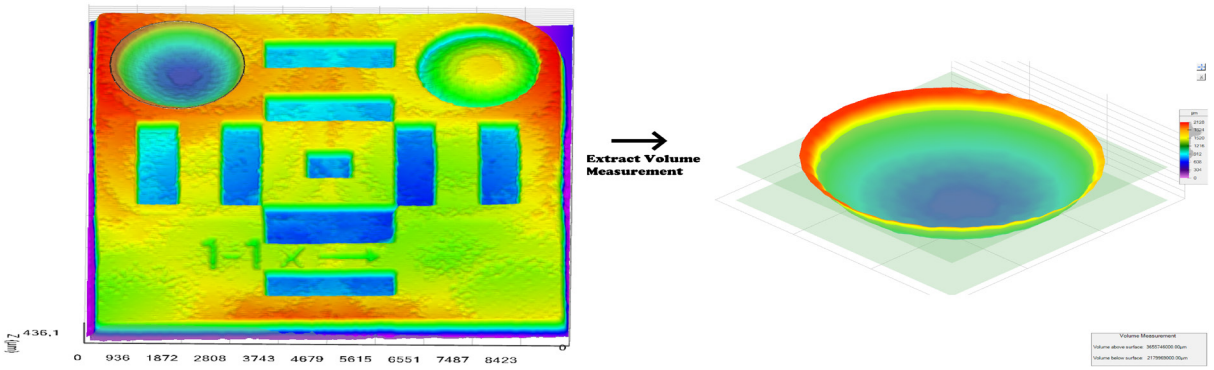
NEW 3D Stitching

Full automatic 3D stitching with motorized XYZ movement. Now it is possible to capture all the details in the sample in super high resolution and up to 16000 pix x 16000 pix 3D images.



3D stitching of PCB board 70mm x 55mm

Volume analysis



Using DeltaPix InSight it is easy to measure volumes in 3D topographies. The relevant surface area can be specified using the selection tools, and the volume can then be extracted. The volume measurement can be adjusted by using the two cutting planes to truncate the volume.

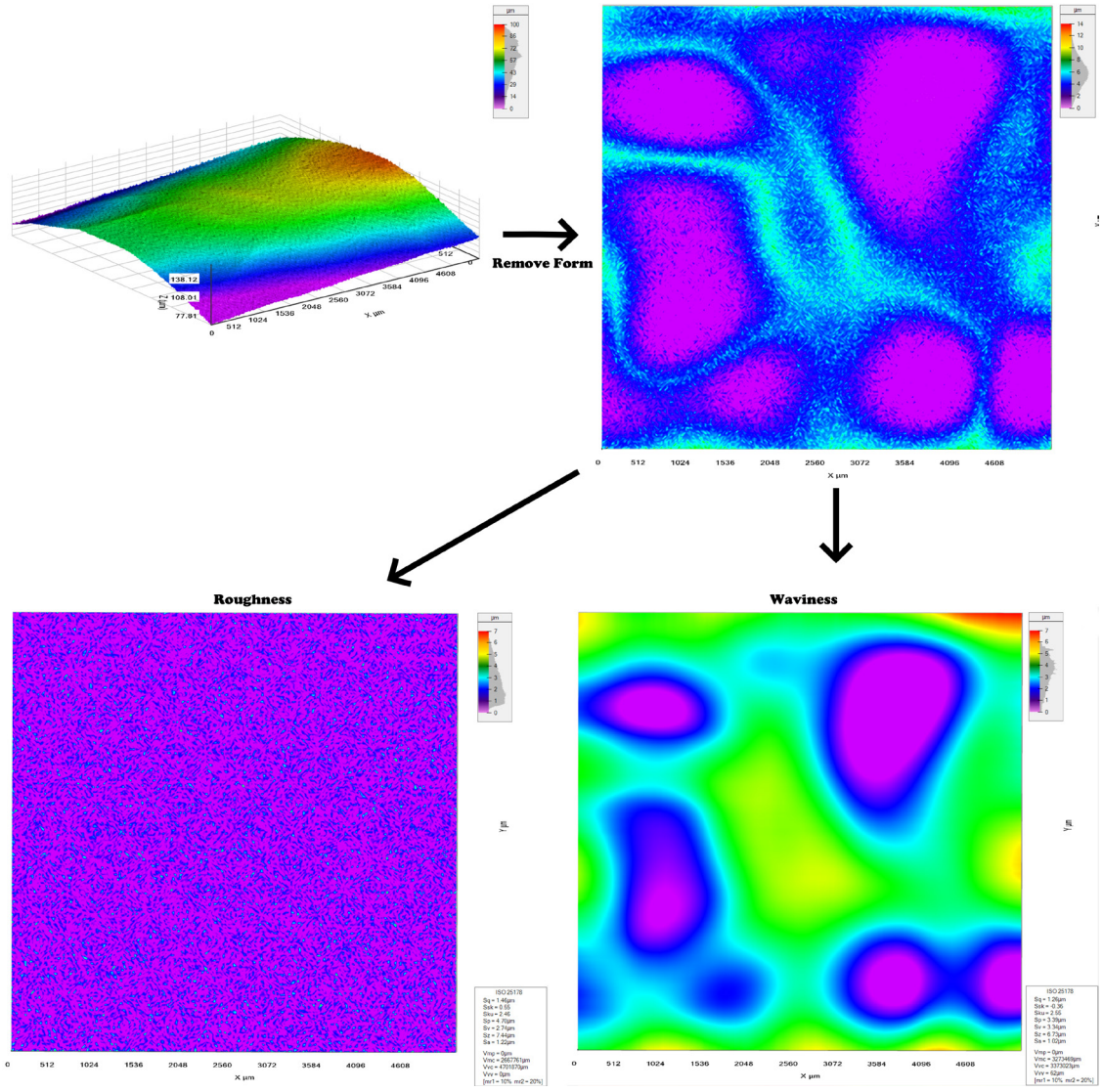
Roughness Measurement

DeltaPix InSight offers a non-contact roughness measurement according to ISO 25178-2:2012.

DeltaPix InSight can be applied to measure the height parameters for the roughness surface and the waviness surface, along with the volume parameters, thereby avoiding the need for third-party applications for most texture analysis.

The surface texture analysis can also be performed on extracted profiles according to ISO 4287.

DeltaPix InSight can level the data and remove form by fitting a plane, sphere, cylinder, or polynomial to the topography. Gaussian, Double Gaussian and Robust Gaussian filters are available to extract the roughness and waviness data. The results can be exported to an Excel spreadsheet.

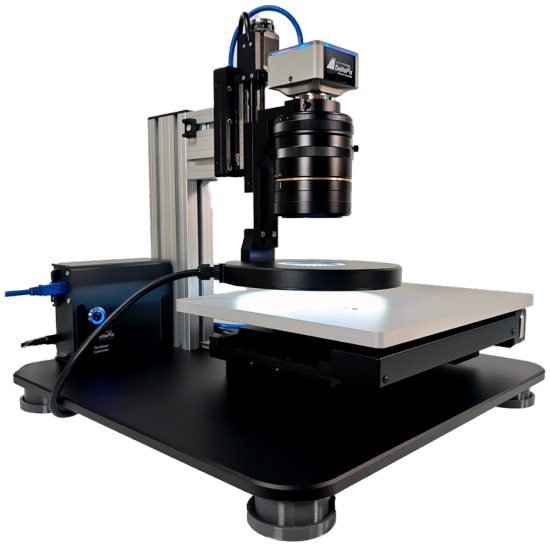


Surface Texture Analysis

Supported parameters on surface, waviness, and roughness data:

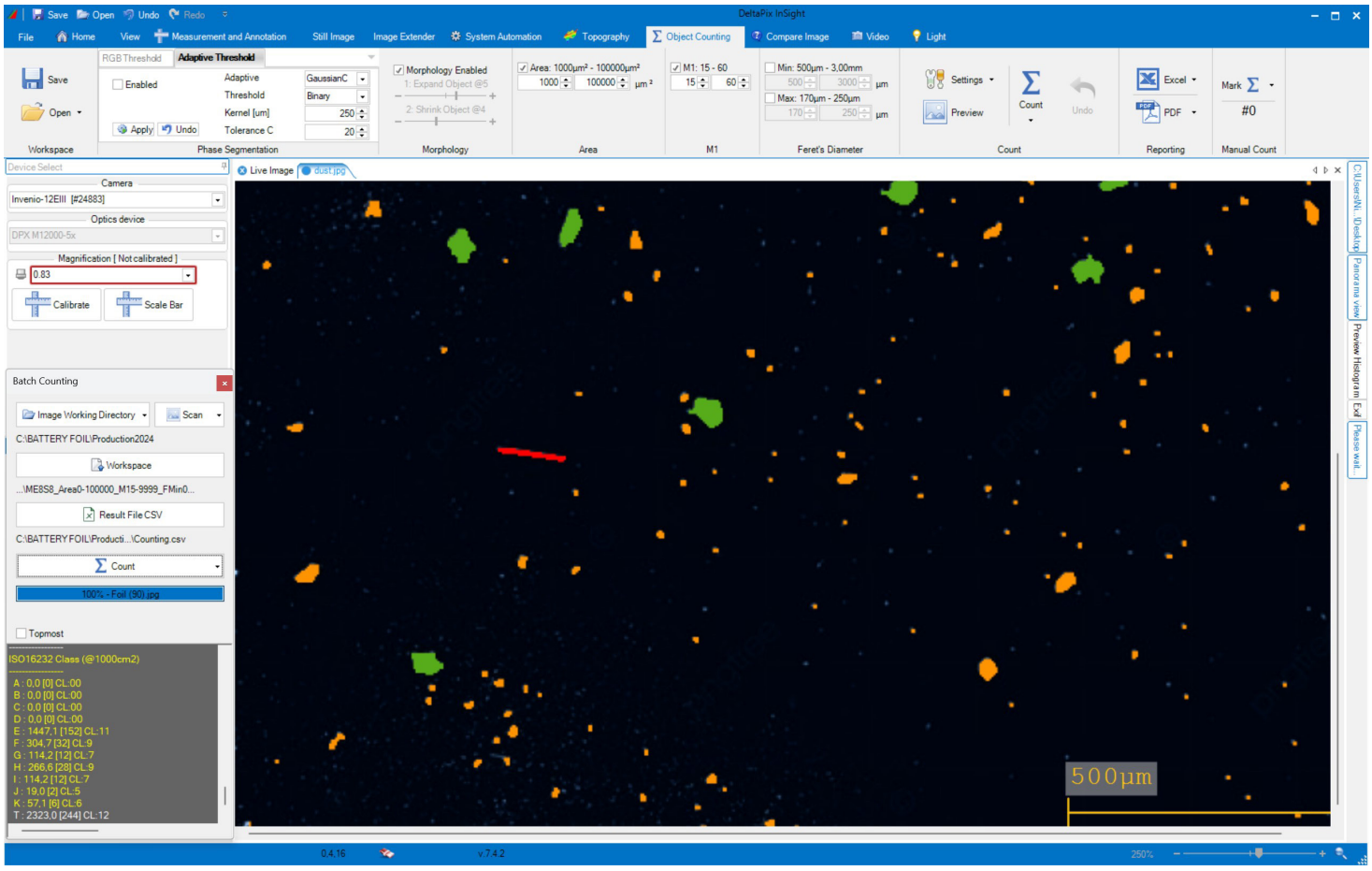
Surface		Profiles	
Sq	Root mean square height of the surface	Rq	Root mean square height of the profile
Ssk	Skewness of height distribution	Rsk	Skewness of height distribution
Sku	Kurtosis of height distribution	Rku	Kurtosis of height distribution
Sp	Maximum height of peaks	Rp	Maximum height of peaks
Sv	Maximum height of valleys	Rv	Maximum height of valleys
Sz	Maximum height of the surface	Rz	Maximum height of the profile
Sa	Arithmetical mean height of the surface	Ra	Arithmetical mean height of the profile
Vmp	Peak material volume	Rt	Total height of the profile
Vmc	Core material volume	Rc	Mean height of the profile elements
Vvc	Core void volume	RSm	Mean width of the profile elements
Vvv	Valley void volume		

The surface texture analysis methods of DeltaPix InSight are validated by using the software measurement standard according to ISO 5436.



Scanning and counting

The DPX M2000 is the perfect solution for inspecting large sample areas and identifying particles and imperfections. The software can automatically scan large areas, for example, an A4 page, and count, separate, and analyze all particles in the area range with sizes down to less than 5µm. Based on the result, it can generate a report including the number of particles grouped by size, form, and orientation. It can even set up an automatic approved/not approved range. This can be made according to ISO 16232/VDA 19 standard



Specifications

DPX M2000 Specifications			
Camera model	**Function**	**0.5x(TC)**	**1x(TC)**
	NA	0.05	0.1
	Resolution(µm)	6 µm	3 µm
	Depth of Field (µm)*1	110 µm	28 µm
	Working Distance	80mm	81.8mm
	Wavelength Range	380nm – 780nm	
	Motorized Z Range	50mm	

Invenio 20ExIV	Magnification*2	54x	108x
	Field of View	24.6mm x24.6mm	12.3mm x12.3mm
Invenio 20EIII	Magnification *2	67x	135x
	Field of View	26 mm x 17.52 mm	13 mm x 8.760 mm

Note:

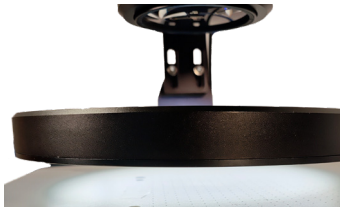
**1 Depth of Field is calculated based on Invenio 20ExIV.*

**2 Magnification is based on the use of a 28‘ monitor with 1920x1200 pixels at 100% zoom (=pixel on the monitor equals one pixel on the sensor).*

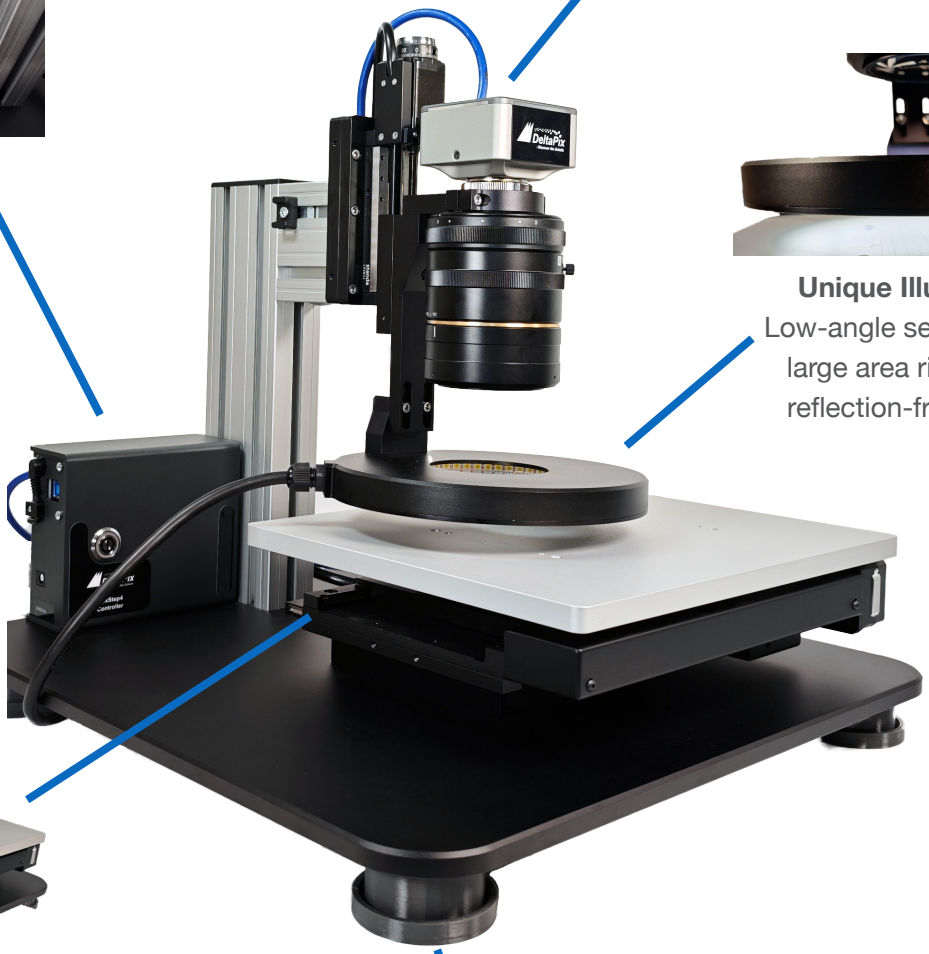
Microscope

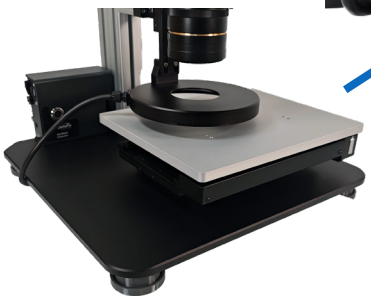
Telecentric Optics and High-Resolution Cameras
At the heart of the DPX M2000 system lies the perfect synergy of high-quality telecentric optics and a high-resolution camera. This powerful combination delivers unmatched detail and accuracy, capturing every detail with astonishing clarity.

DPX Step4 MKII
Controller Built-in controller provides high-precision control for focus, light, and an optional vacuum system.

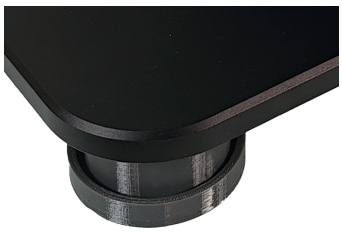


Unique Illumination
Low-angle semi-dark field large area ring light for reflection-free images.





Large XY stage
The DPX M2000 system is configured with a large 75mm x 125mm precision XY stage as standard with the option to upgrade to 100mm x 100mm or 200mm x 200mm XY stage.



Anti-Vibration
The DPX M2000 is equipped with vibration-damping feet in order to provide more stable images

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