DeltaPix DPX M12000

Digital 3D Microscope

- **Super high resolution**
- **3D topography**
- **3D measurement**
- **2D measurements**

- **Surface Texture ISO 24178 / ISO 4287**
- **Super depth of field**
- **Auto stitching and scanning**
- **3D Stitching**

High-resolution Inspection and Precise Measurements

Super Depth of Field

Inspection and Still images

Inspect the samples in full resolution and capture all the details for documentation with just a click of the mouse.

The images can be saved in various compressed or uncompressed formats like JPEG, JPEG2000, Tiff, and BMP
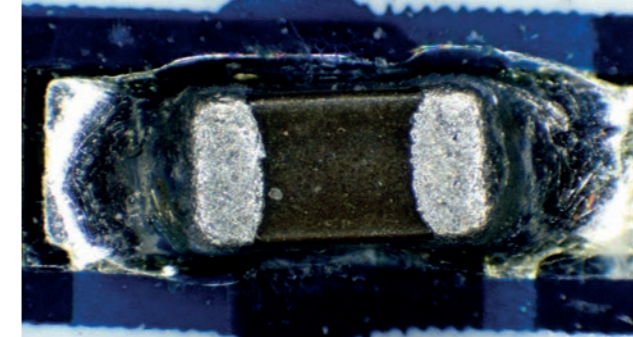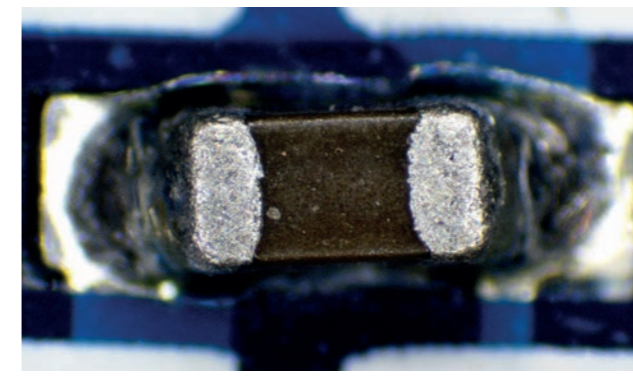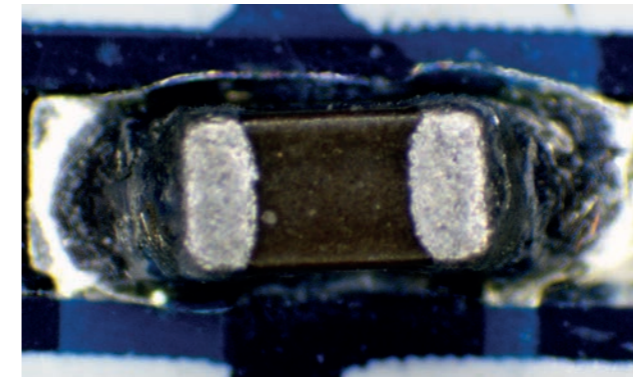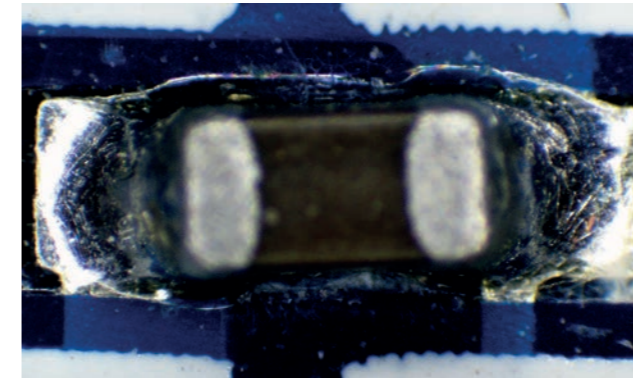
Super Depth of Field

DeltaPix microscopes can produce "Super depth of field", this extends the standard focal depth of the objective, by capturing images at different focal planes and using the state of the art algorithms. This technique also works on stereo microscopes.

The number of images required for each extended focus capture, is automatically calculated from the depth of field at a given magnification.

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.
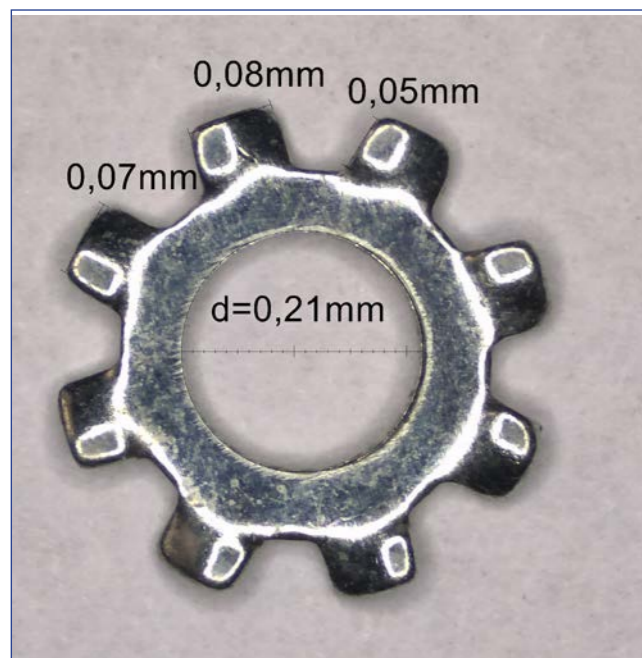
Extended Field of View / Auto Stitching

The field of view can be extended by including a motorized XY stage.
This is done without involving the user in complicated calculations, the user just moves the stage with the joystick or keyboard to the two opposite corners for the region of interest, then the software does the rest automatically.

The resulting image provides a large seamless field of view with perfect microscopic details. The automatic stitching can be combined with extended depth of field, extended image dynamics and autofocus.
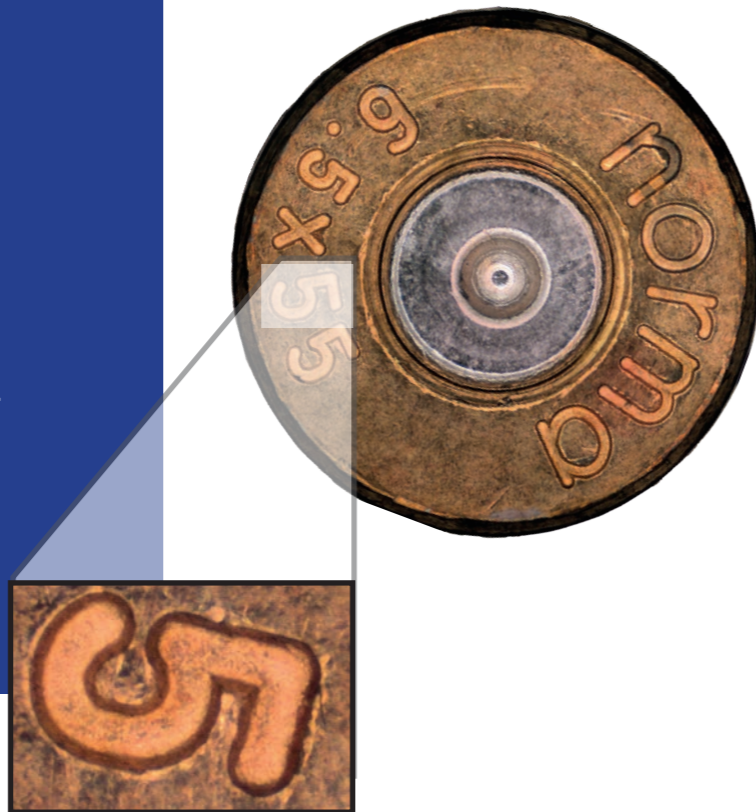
3D Topography

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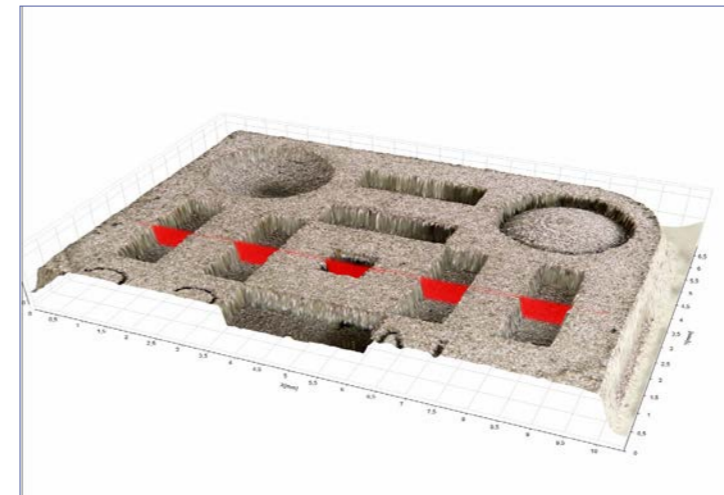

3D-printed titanium sample

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 against a height scale.

# 3D Measurements

Comprehensive and intuitive 3D measurements.

The Deltapix DPX M12000 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. Multiple light source options, in combination with high-resolution long working distance optics allow visualization of image surfaces with ease. Traditional 3D systems like confocal and scanning microscopes can struggle with complex surface topography, but the DeltaPix DPX12000 3D 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.
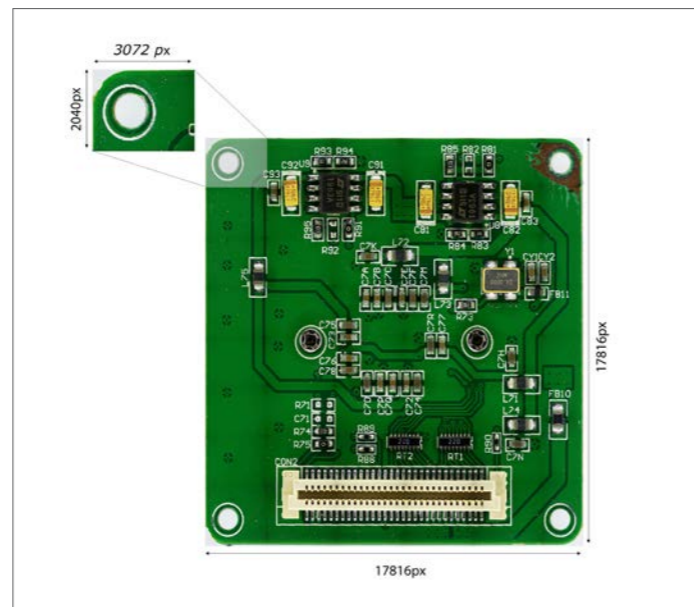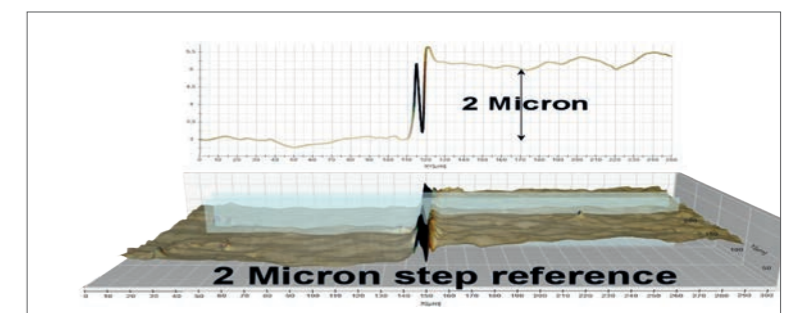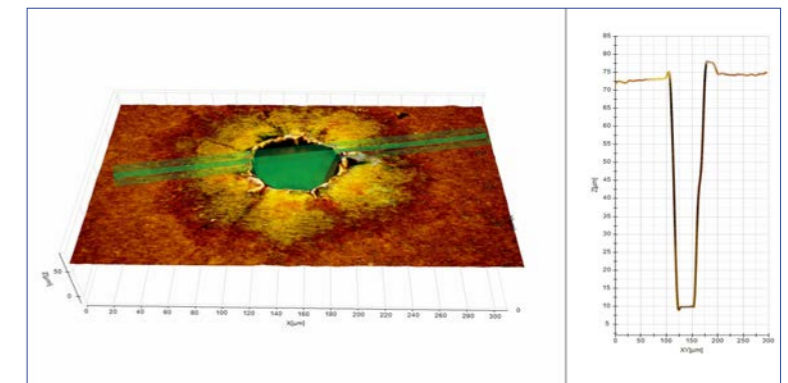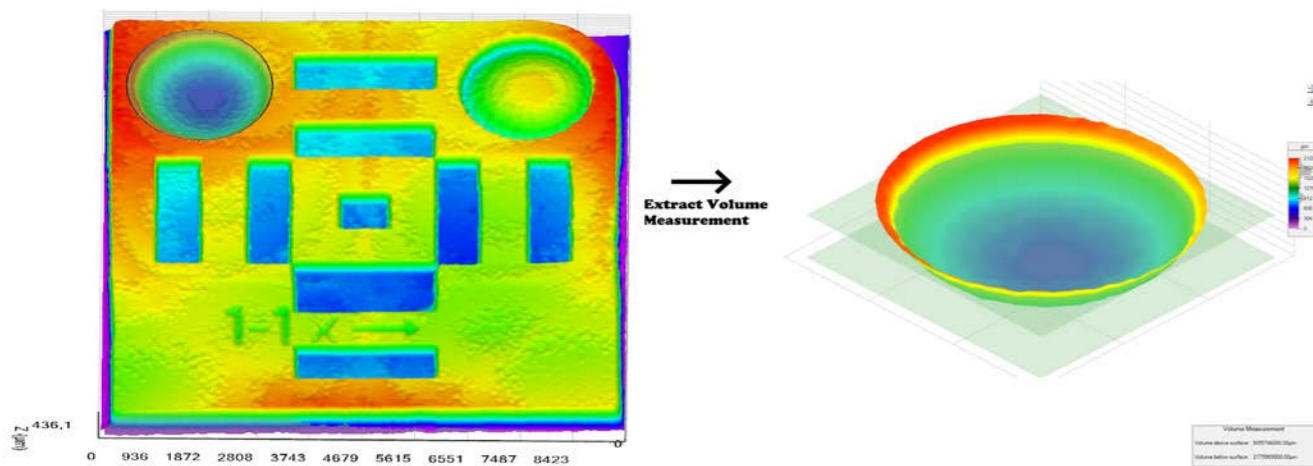
NEW 3D Stitching

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.
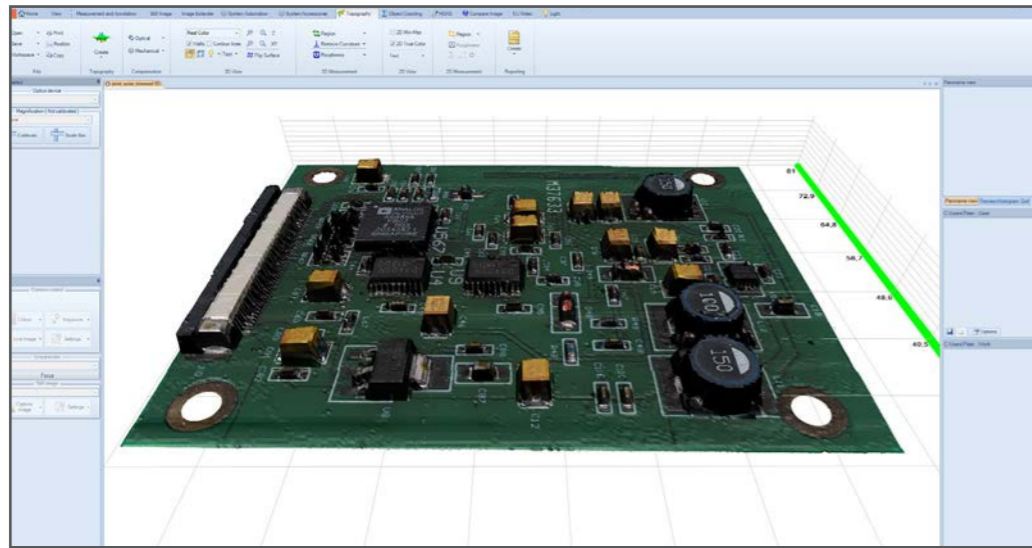
3D stitching of PCB board 70mm x 55mm

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.
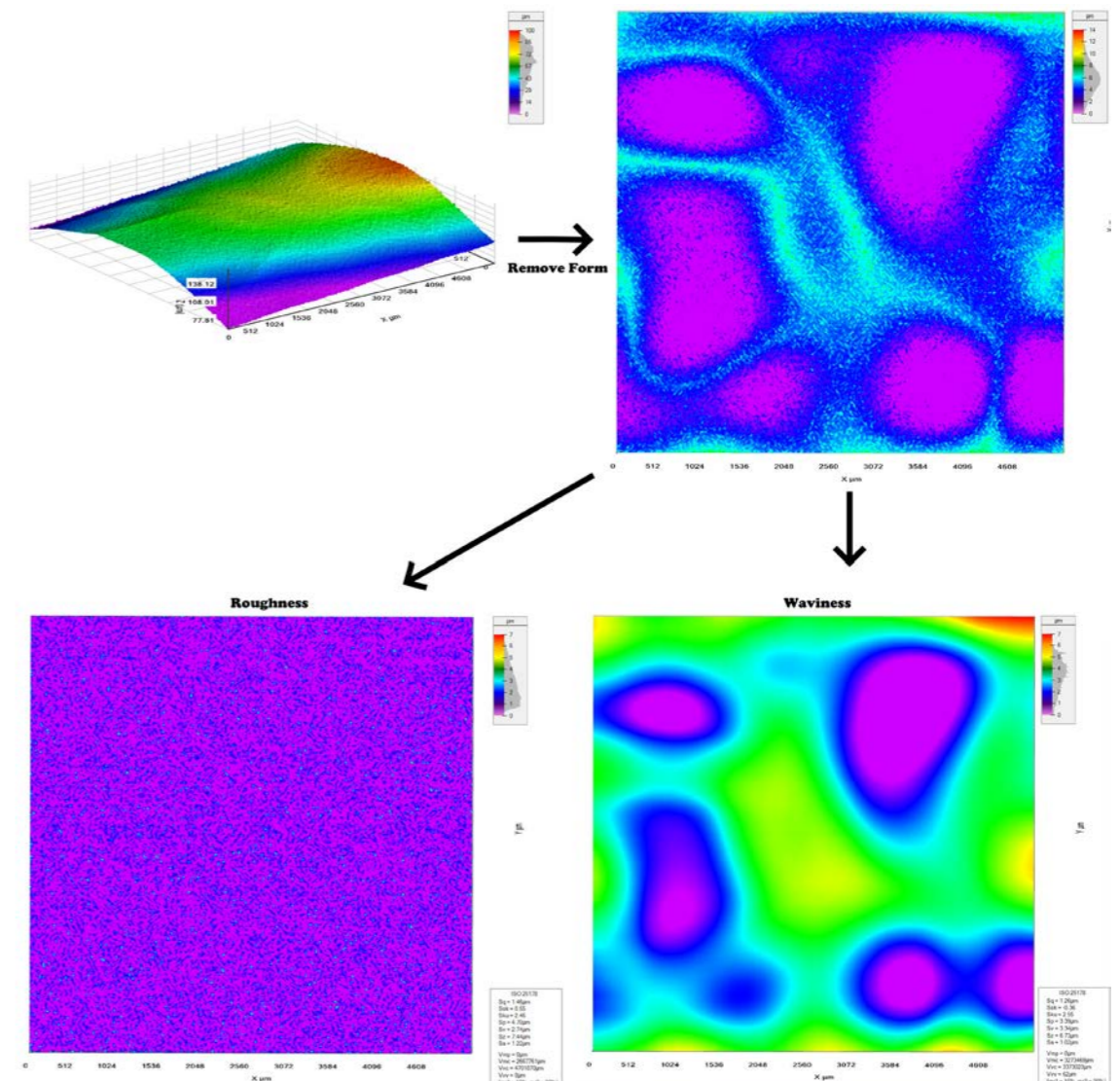
Surface Texture Analysis

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.
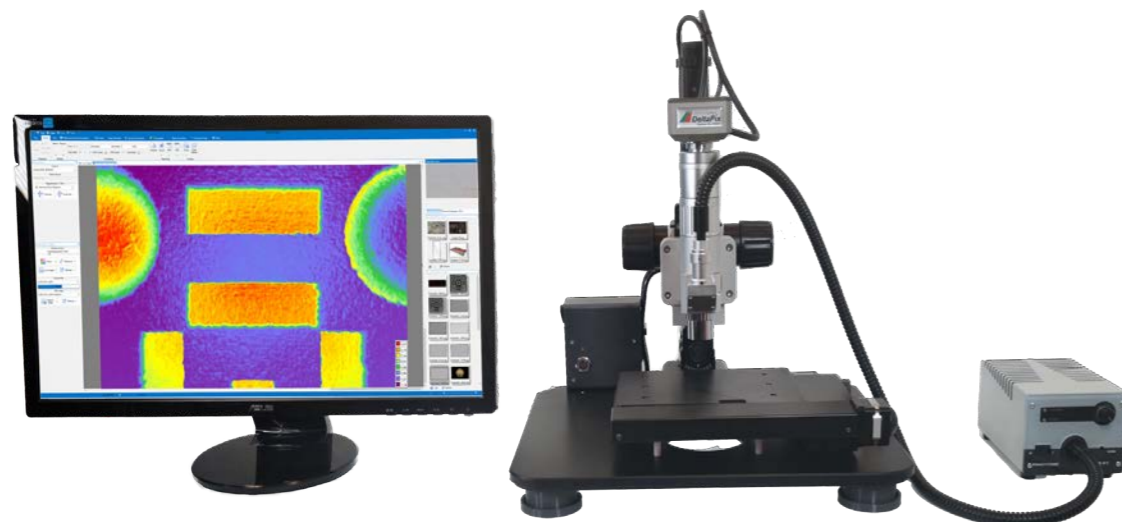
Specifications

DPX M12000 zoom Specifications						
Camera model	Function	5X	15X	25X	50X	70X
	NA range	0.01-0.07	0.03-0.2	0.06-0.36	0.1-0.45	0.14-0.7
	Resolution	33.55-4.79µm	<1.5-11µm	<0.9-5.5µm	<0.7-3.4µm	2.40-0.48µm
	Focal depth	+-2750-56.12µm	7-300µm	2-77µm	1.4-27µm	±14.03-0.56µm
	Working Distance	45mm	46.2mm	35.25MM	14mm	7-1mm

Invenio 8EIV	Magnification	54x-654x	163x - 1946x	323x - 3891x	538x - 6475x	753x-9075x
	Field of View	22mm-12.3mm	7.4mm x 4.16mm	3.7mm – 2mm	2.2mm-1.3mm	1.6mm x894µm
		1.8mm - 1 mm	614 µm x 346 µm	307µm-173µm	185µm-104µm	132µm x 79µm

Note:

1. Maximum magnification and minimum FOV are calculated based on a 27" monitor with 1920x1080 pixels, at 100% zoom at maximum still image camera resolution. 2. *NA at high highest magnification. NA varies with zoom settings
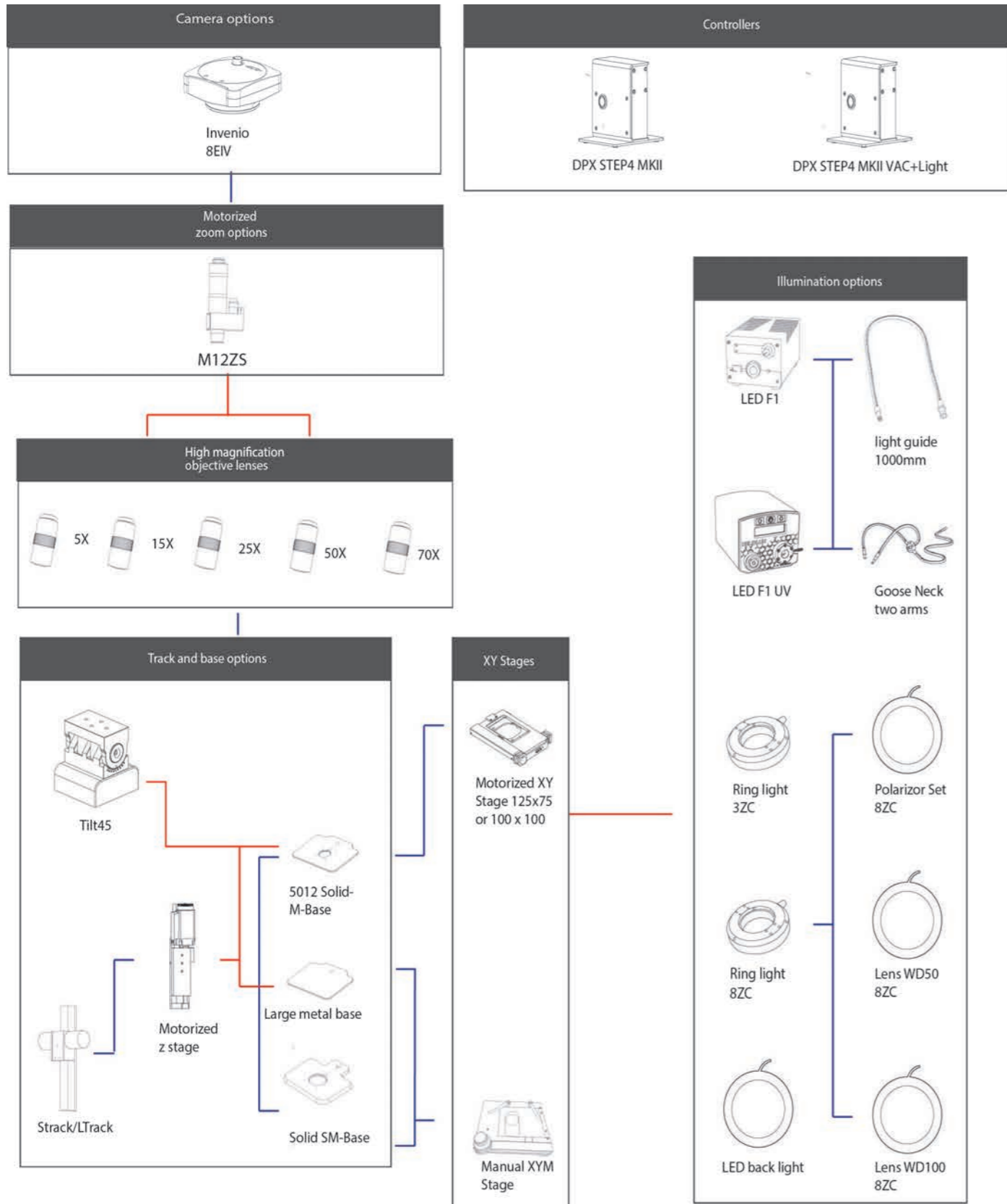
New Improved Microscope Base

Now featuring a new and improved stand for DeltaPix digital microscopes to provide tilting function, an integrated controller for ease of installation, and anti-vibration feet.

Small environmental vibrations from surrounding machines, trains, transport, cooling, heating, and other sources, can often cause the specimen under observation to vibrate with several microns, which will make the image look unsharp, and make measurements unprecise, especially at high magnification.

These artifacts are dramatically reduced by the new anti-vibration feet, thus increasing the usability of the microscope in "real-life" environments.
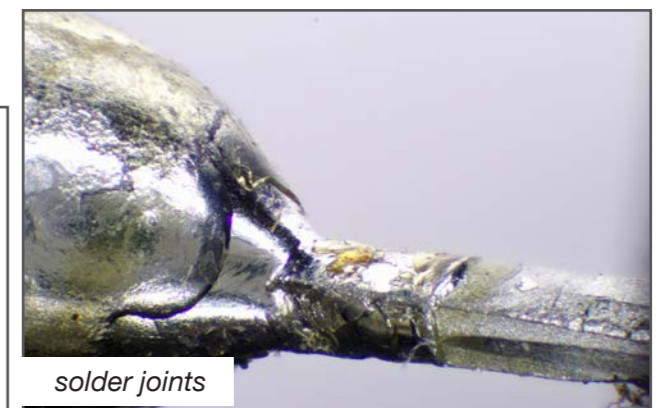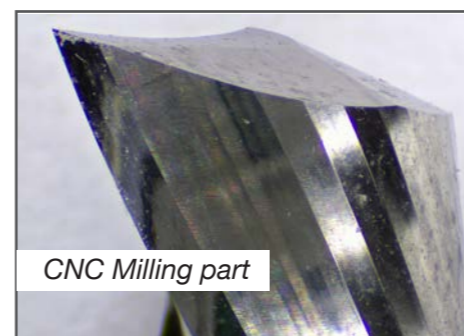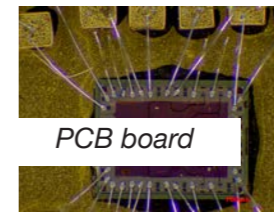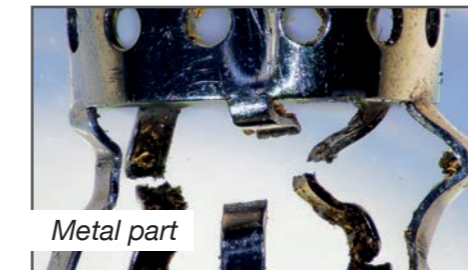
Microscope diagram

Camera options

Invenio 8EIV

Motorized zoom options

M12ZS

High magnification objective lenses

5X 15X 25X 50X 70X

Track and base options

Tilt45

5012 Solid-M-Base

Motorized z stage

Large metal base

Strack/LTrack

Solid SM-Base

XY Stages

Motorized XY Stage 125x75 or 100 x 100

Manual XYM Stage

Controllers

DPX STEP4 MKII

DPX STEP4 MKII VAC+Light

Illumination options

LED F1

light guide 1000mm

LED F1 UV

Goose Neck two arms

Ring light 3ZC

Polarizor Set 8ZC

Ring light 8ZC

Lens WD50 8ZC

LED back light

Lens WD100 8ZC

Gallery

Various images from DeltaPix image library.

Cutting tool insert

Bug

Metal part

PCB board

Jewelry

Metal part

Crystals

PCB board

Bug

CNC Milling part

Bug

solder joints

DeltaPix
- Discover the Details
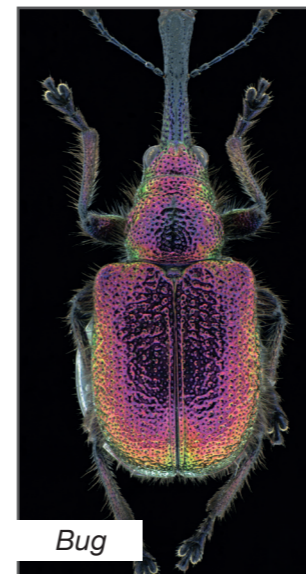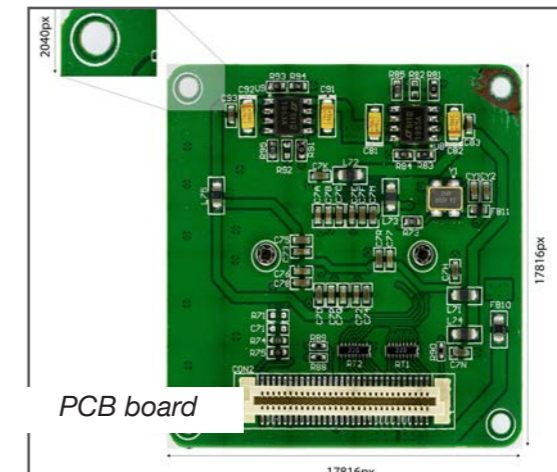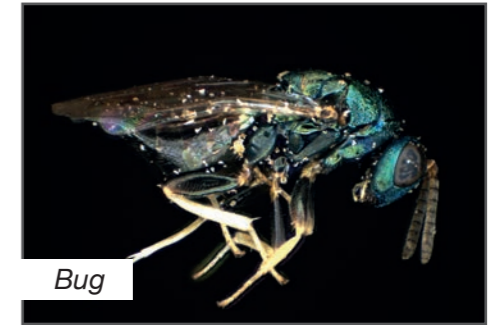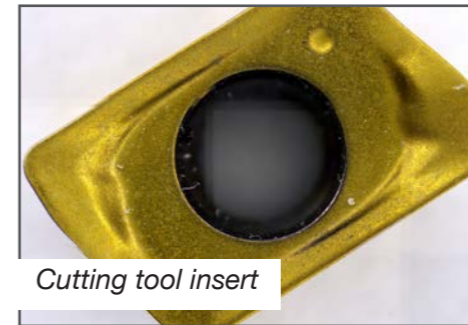
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