Seeing beyond

Partial focus.
Readjust. Every time.

Inspected by classic microscope

All-in-focus.
First time. Every time.

Inspected by ZEISS Visioner 1

ZEISS VISIONER 1

All-in-focus. First time. Every time.

https://zeiss.com/visioner1

INTERACTIVE PDF

ZEISS VISIONER 1

All-in-focus. First time. Every time.

Visioner 1 is an innovative **digital microscope featuring MALS™ Technology** for shop floor quality control and quality assurance applications and for the first time ever enabling real-time all-in-focus visualization.

Real-time Extended Depth of Field (EDoF)

SELECT

Unique MALS™ (Micro-mirror Array Lens System)

SELECT

Fastest 3D Visualization & documentation & ZEISS ZEN core

SELECT

Ergonomic operation

SELECT

Illumination & Tech. Specs

SELECT

Overview

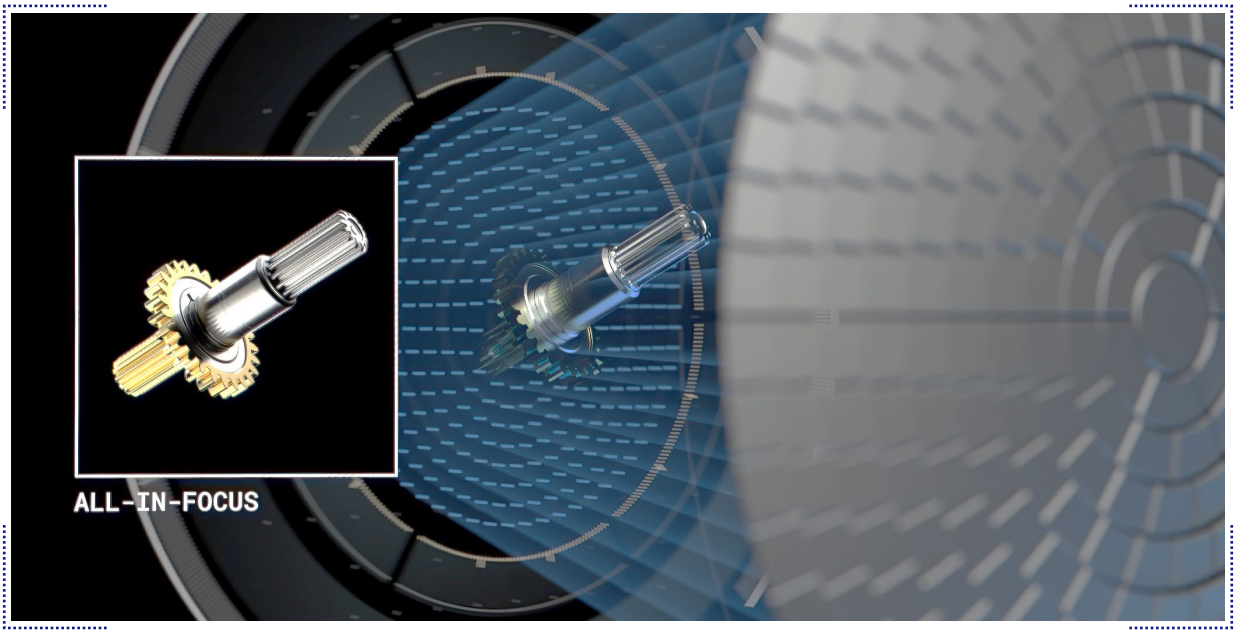
SELECT

Real-time
Extended Depth of Field (EDoF)

No Z-stacking. No downtime. Instant all-in-focus.

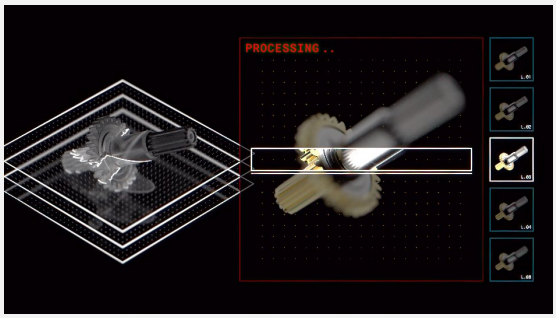
ZEISS Visioner 1 enables the user to see the sample completely in focus in real-time, without the need to Z-Stack and post process a series of images. Allowing up to 100x more usable Extended Depth of Field and height differences of up to 69mm.

This is achieved utilizing MALS™ technology and drives the Visioner 1 to deliver **real-time** all-in-focus imaging – first time, every time.



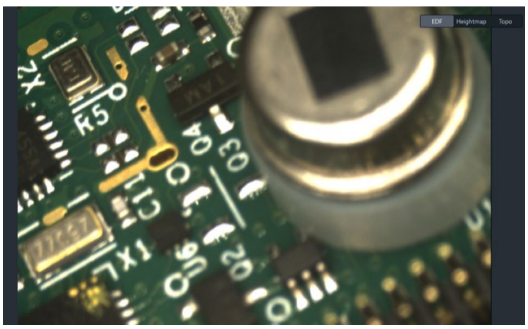
Current Technology

Extended Depth of Field (EDoF) is a process where multiple images through the focal plane are combined to create one in focus image however with digital microscopy systems, this can be time consuming and complex.

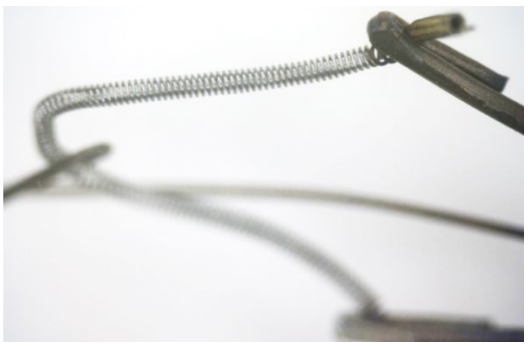


Real-time
Extended Depth of Field (EDoF)

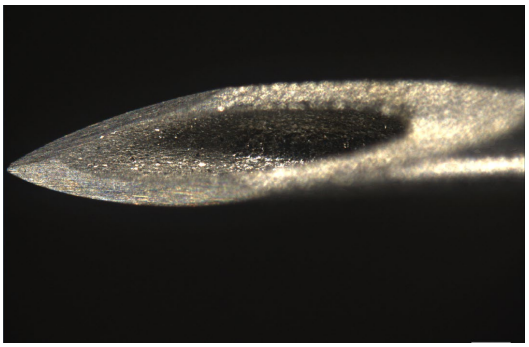
Partial Focus
Inspected by classic microscope



Imaging Sensor Circuit Board inspected by classic microscope

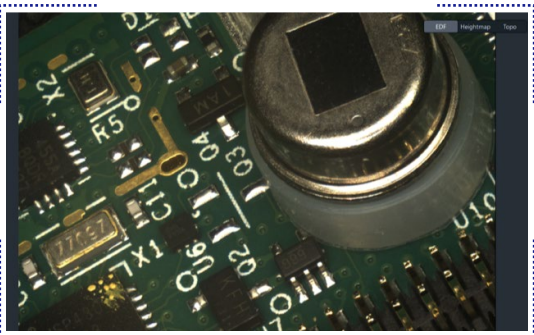


Light Bulb Filament inspected by classic microscope



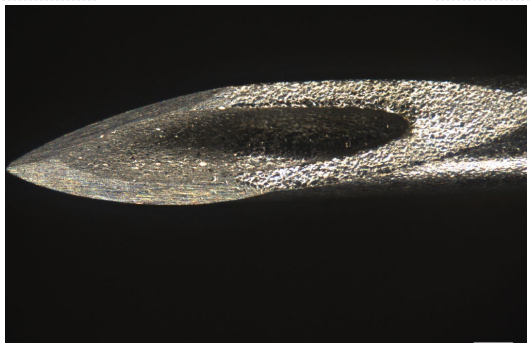
Needle inspected by classic microscope

All-in-focus
Inspected by **ZEISS Visioner 1**



Imaging Sensor Circuit Board inspected by **ZEISS Visioner 1**

Light Bulb Filament inspected by **ZEISS Visioner 1**



Needle inspected by **ZEISS Visioner 1**

MALS™ allows all-in-focus optical inspection height differences up to **69mm**

ZEISS Visioner 1

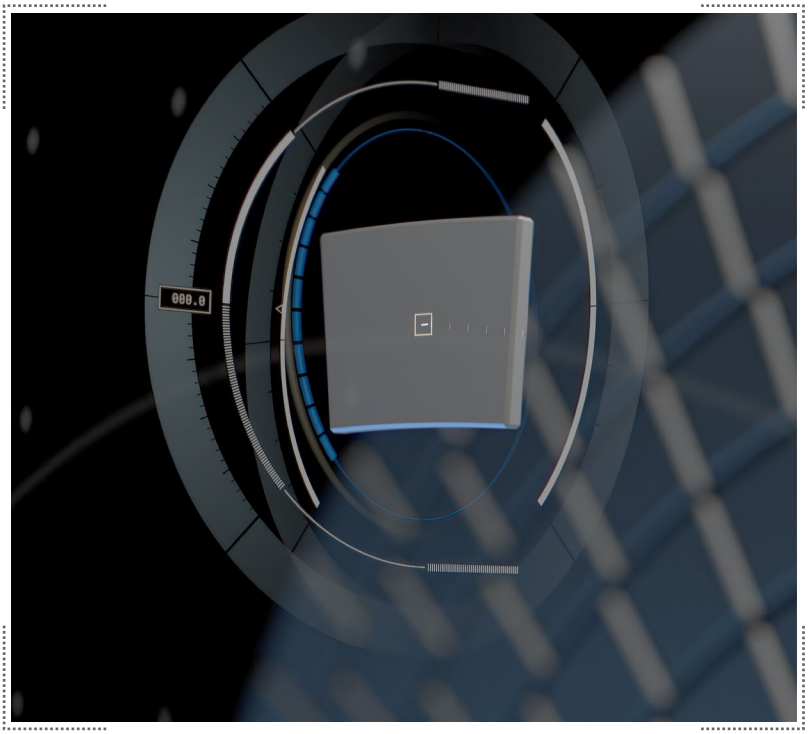
with unique Micro-mirror Array Lens System (MALS™) technology

Reshaping the rules of optics

MALS™ allows optical inspection for height differences of up to 69mm to be in focus, without the need for Z-stacking or re-focusing.

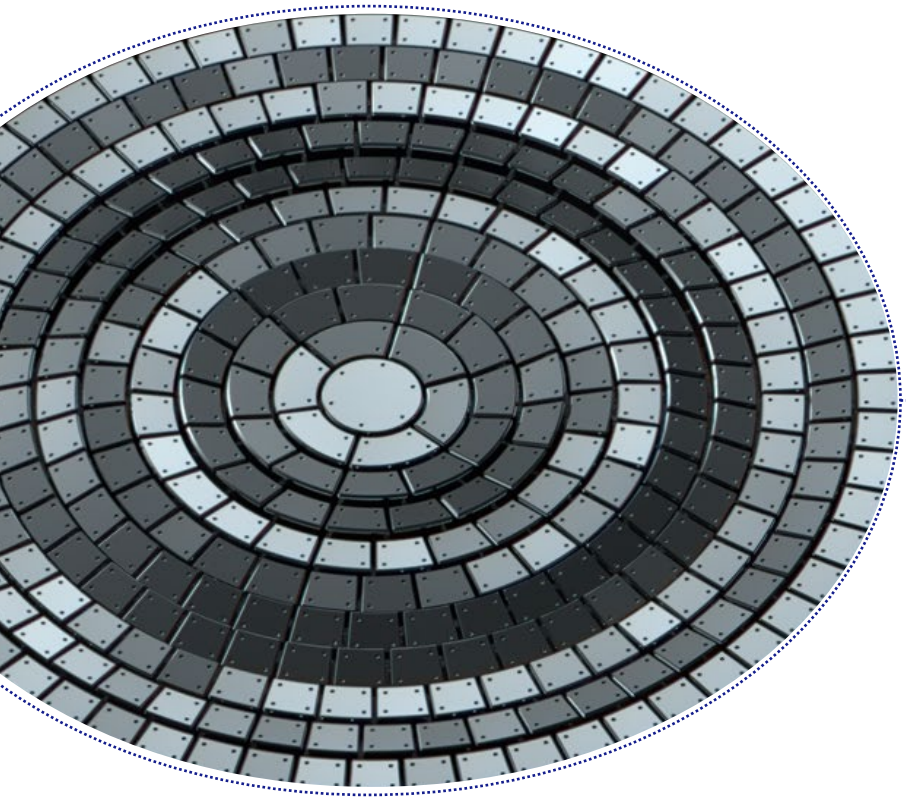
Using a micro-mirror array lens system (MALS™) enables us to generate “virtual” lenses with distinctly different curvatures, thus focus planes. This is achieved by changing the orientation of each individual micro-mirror in an orchestrated way.

Re-shaping the curvature of this “virtual” lens at speed enables ultra-fast focusing and real-time all-in focus imaging and documentation.



ZEISS Visioner 1
Driven by MALS™ Technology

- ✓ Up to **100x more** usable Extended Depth of Field.
- ✓ Allows for height differences of up to **69mm.**
- ✓ Reflective **Micro-mirror** Array with curvatures (variable) arranged in a flat plane.
- ✓ Each micro-mirror is **100x100µm.**
- ✓ Each micro-mirror **rotates & translates** to form the optical surfaces with variable curvatures.
- ✓ **No need** for Z-stacking or re-focusing.



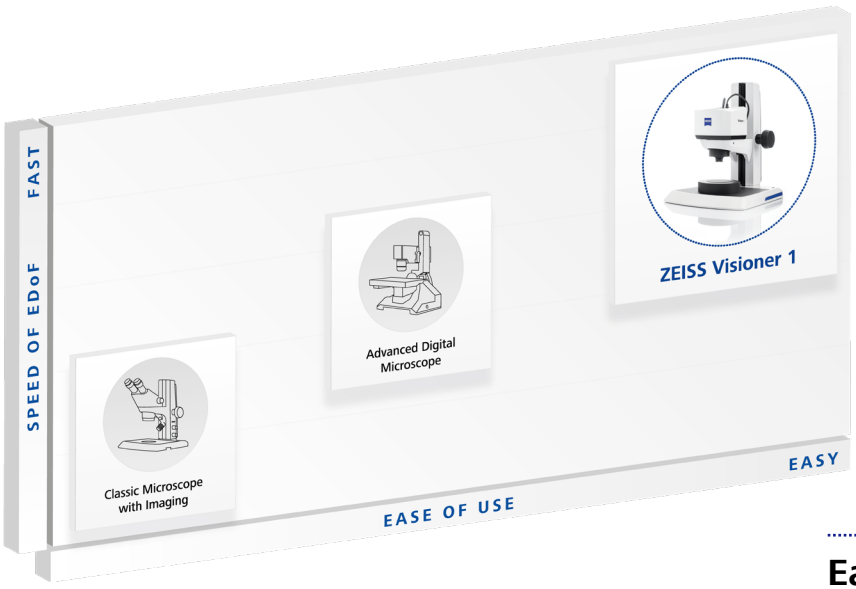
Each micro-mirror is 100x100µm.

Fastest 3D visualization and documentation with ZEISS ZEN core

Improve Productivity

Visioner 1 not only simplifies the imaging and documentation task, but the real-time EDoF enables you to inspect your component faster, delivering higher throughput.

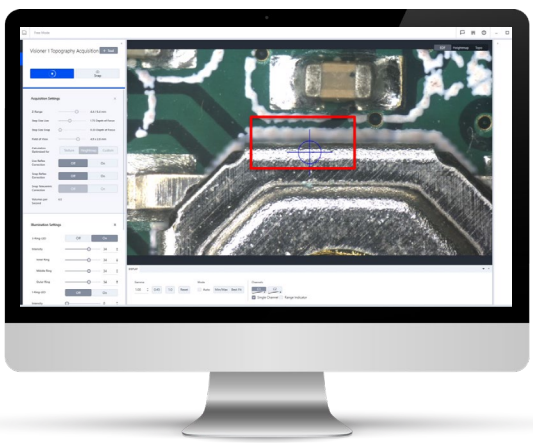
You can directly document your inspection task which is extremely relevant for regulated industries like medical, aerospace, automotive, with the ability to follow GxP.



Easy 2-step Documentation

Use one mouse click or the hands-free foot switch to document your inspection results instantly.

Step 1
Target the desired area in the field of view.



Step 2
Trigger your hands-free foot switch.

ZEISS ZEN core

Advanced full connectivity with ZEN core

Whether connecting the shop floor or inspecting incoming goods with the quality lab or R&D departments, ZEN core facilitates knowledge sharing and problem solving within your company and even across different locations around the world.

Enabling correlation of inspection results with further high-resolution imaging or analytics let's you put the data into context, whereas the integrated GxP module enables traceability in regulated industries.

Workflow-oriented ✓

ZEN core enables an easy to use, workflow-oriented user experience for the most comprehensive range of microscopy applications and challenges.

Mobile Access ✓

ZEN Data Explorer allows access to all data on the central ZEN Data Storage from any place via mobile device or browser.

Correlation and Connectivity ✓

Through its correlative data workflow, ZEN core allows quick and easy relocation of regions of interests, across different imaging methods and microscope technologies.

Reliable Data Storage ✓

The central database for secure data handling and documentation offers a scalable central storage solution for results, methods, and templates.

Third-Party Import ✓

Users can import and process third party images, from instruments out of the ZEISS portfolio.

Find out more about the capabilities of ZEN core www.zeiss.com/zen-core

Ergonomic
Operation

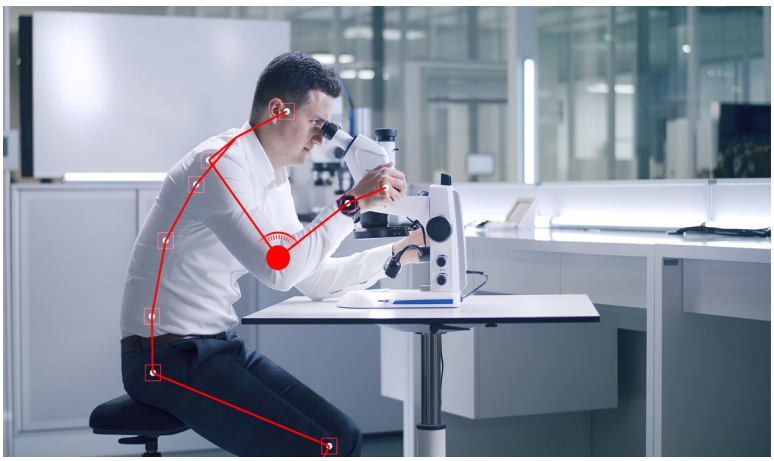
An extension of your senses

Using the fully digital ZEISS Visioner 1 enables you to set-up your systems once and then focus exclusively on your inspection and documentation task.

Remove the fatigue of the eyepieces and work more efficiently by using your hands for your inspection task instead of continuously re-adjusting the microscope.

As everything is displayed in real-time, all-in-focus on a single screen the inspection task feels most natural, like an extension of your senses.

Visioner 1 Ergonomic Posture

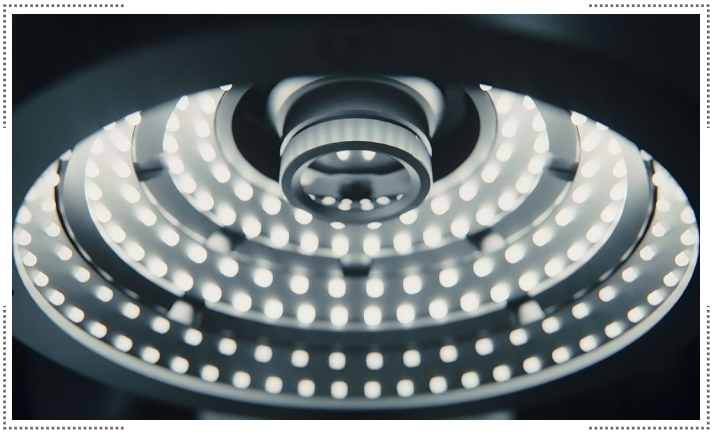


Classic Microscope Posture

Illumination
& Specs

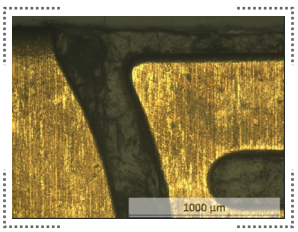
Key factors for optical inspection

Next to depth of focus, **resolution** and **illumination remain key for optical inspection tasks**. Therefore a range of magnification and illumination are available.



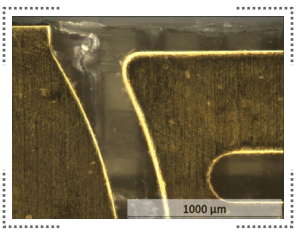
Illumination Modes

1. Co-axial LED epi-illumination

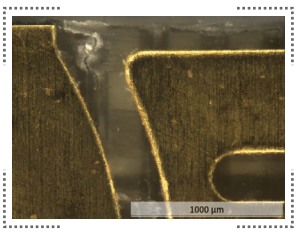


Co-axial Illumination

2. LED ring illuminator with 3 rings and 8 segments
Optional: *LED ring illuminator with 1 rings (optimized for 2.5x magnification)*

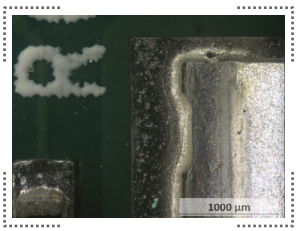


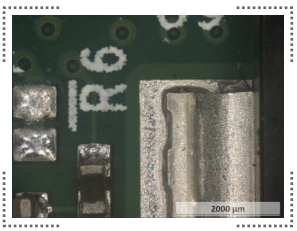
Ring Light Illumination

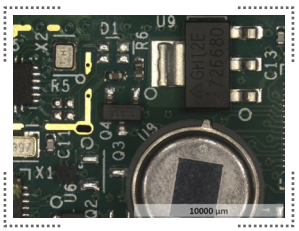


Ring Light Illumination with glare removal
(details on the edges now visible)

Magnification







Magnification	**2.5**	**1.5**	**0.35**
Field of view (max.)	2.8 x 2.1 mm	5.4 x 4.0 mm	20.1 x 15.1 mm
Working distance (optics)	17 mm	47 mm	167 mm
Resolution (max.)	125 Lp/mm	65 Lp/mm	17 Lp/mm
Extended Depth of Focus (max.)	1.8 mm	6.4 mm	69.0 mm

ZEISS VISIONER 1
All-in-focus. First time. Every time.

Classic inspections systems offer shallow depth of field, this means that parts of the sample may not be in focus, which can lead to missing features, user fatigue, and incomplete inspection.

ZEISS Visioner 1 revolutionizes the world of optical inspection and documentation. Driven by the unique Micro-mirror Array Lens System (MALS™) technology, it enables for the first time real-time all-in-focus imaging – first time, every time.

Real-time extended Depth of Field (EDoF)

Visioner 1 enables you to see the sample completely in focus in real-time, without the need to Z-Stack and post process a series of images. This allows faster inspection of components. Additionally, you will never miss a defect.

Visualize more, faster, thanks to real-time extended depth of field.

Illumination & Tech. Specs

Measure, analyze, store, manage, trace, and share, workflows, documentation, results, and GxP via ZEN core software suite.

Unique MALS™ (Micro-mirror Array Lens System)

Reflective Micro-mirror Array with curvatures (variable) arranged in a flat plane.

Each micro-mirror is 100x100µm.

Each micro-mirror rotates & translates to form the optical surfaces with variable curvatures.

Allows for height differences of up to 69mm.

No need for Z-stacking or re-focusing.

Ergonomic operation

Remove the fatigue of the eyepieces and work more efficiently by using your hands for your inspection task instead of continuously re-adjusting the microscope.

Simple, easy-to-use software enables even untrained users to deliver all-in-focus imaging and documentation.

Fastest 3D visualization & documentation with ZEN core

Visioner 1 not only simplifies the imaging and documentation task, but the real-time EDoF enables you to inspect your component faster, delivering higher throughput of components.

Directly document your inspection task which is extremely relevant for regulated industries like medical, aerospace, automotive, with the ability to follow GxP.

Home

EN_60_020_0051I digital version