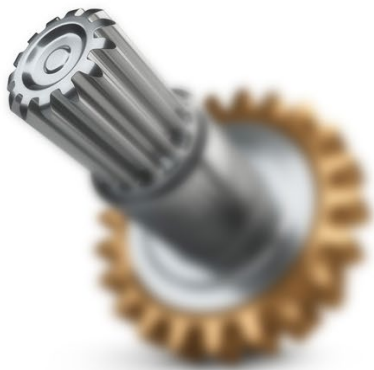




Seeing beyond

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.

ZEISS Visioner 1 is an innovative **digital microscope featuring MALSTM 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)**

**Unique MALSTM  
(Micro-mirror  
Array Lens System)**

**Fastest 3D  
Visualization &  
documentation  
& ZEISS ZEN core**

SELECT

SELECT

SELECT

**Ergonomic  
operation**

**Illumination  
& Tech. Specs**

**Overview**

SELECT

SELECT

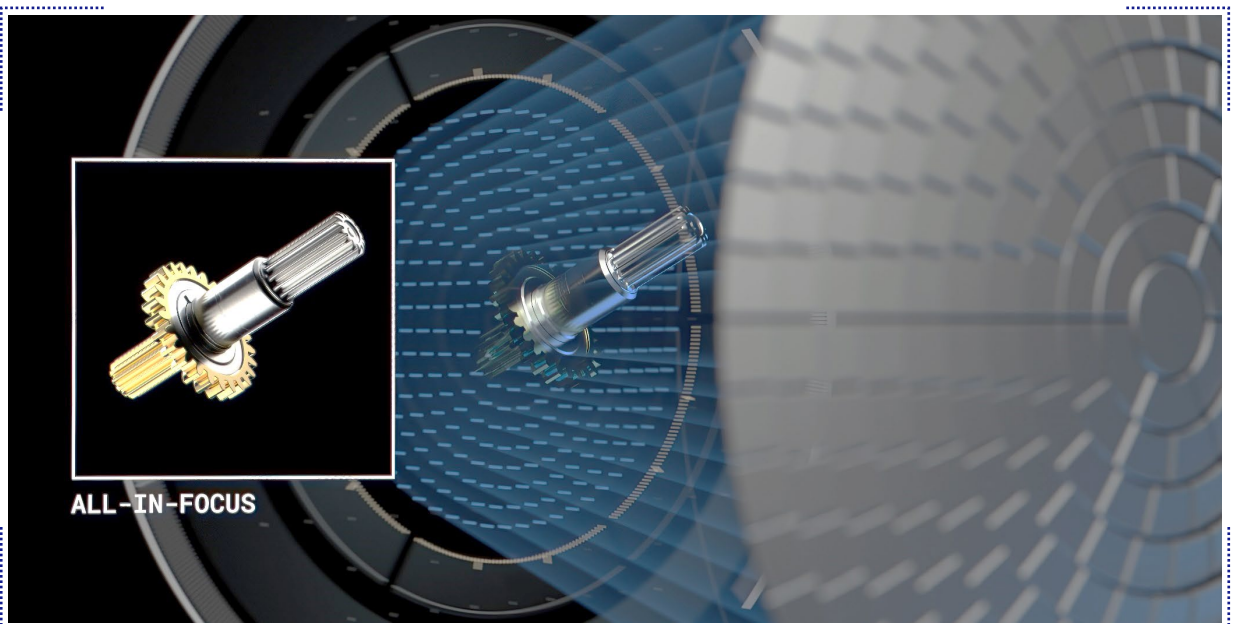
SELECT

# Real-time Extended Depth of Field (EDoF)

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

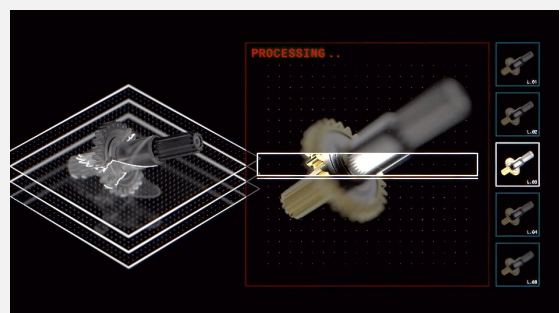
**ZEISS Visioner 1** enables the user to see the sample completely in focus in real-time, without the need to Z-Stack and post process a series of images. Allowing up to 100x more usable Extended Depth of Field and height differences of up to 69mm.

This is achieved utilizing MALSTM 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)

Unique MALSTM  
(Micro-mirror  
Array Lens System)

Fastest 3D  
Visualization &  
documentation &  
ZEISS ZEN core

Ergonomic  
operation

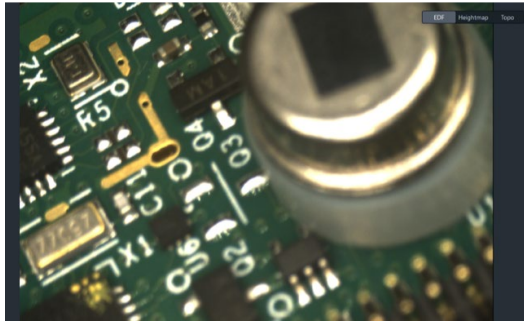
Illumination  
& Tech. Specs

Overview

# Real-time Extended Depth of Field (EDoF)

## Partial Focus

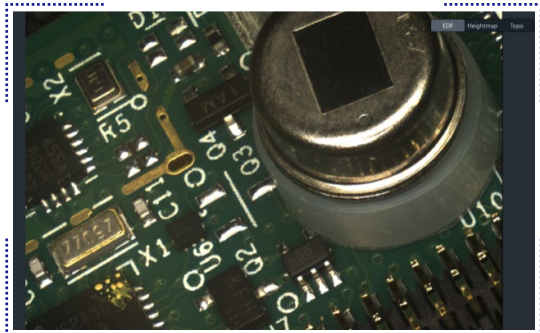
Inspected by classic microscope



Imaging Sensor Circuit Board inspected by classic microscope

## All-in-focus

Inspected by **ZEISS Visioner 1**



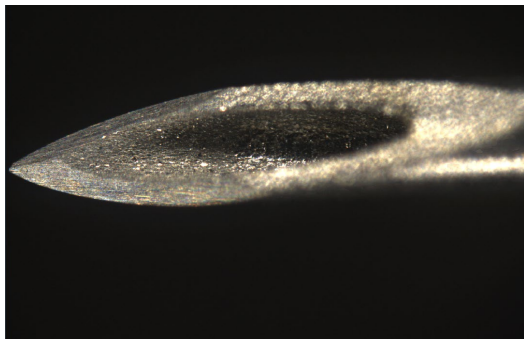
Imaging Sensor Circuit Board inspected by **ZEISS Visioner 1**



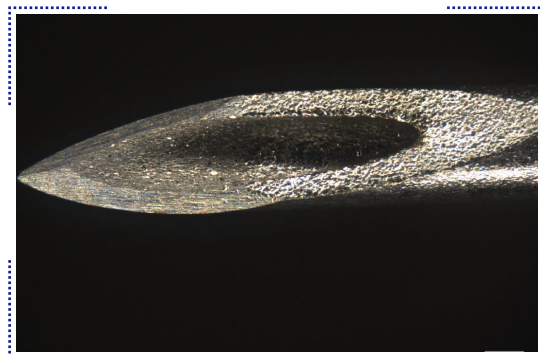
Light Bulb Filament inspected by classic microscope



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



Needle inspected by classic microscope



Needle inspected by **ZEISS Visioner 1**

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

# ZEISS Visioner 1

with unique Micro-mirror Array Lens System (MALSTM) technology

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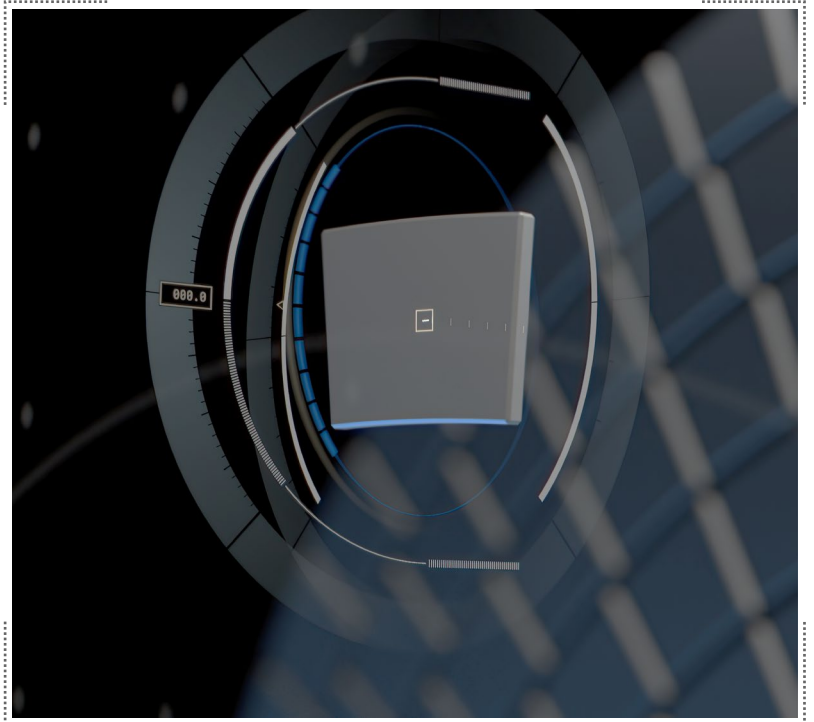
## Reshaping the rules of optics

---

MALSTM 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 (MALSTM) 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.

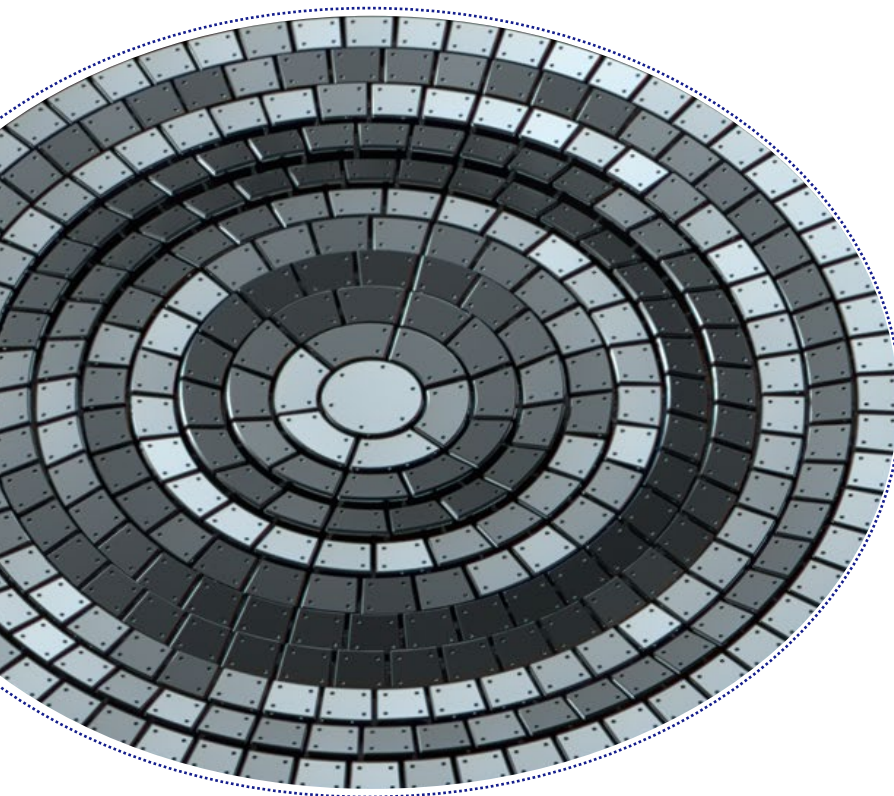
Re-shaping the curvature of this "virtual" lens at speed enables ultra-fast focusing and real-time all-in focus imaging and documentation.



# ZEISS Visioner 1

## Driven by MALST<sup>™</sup> 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.



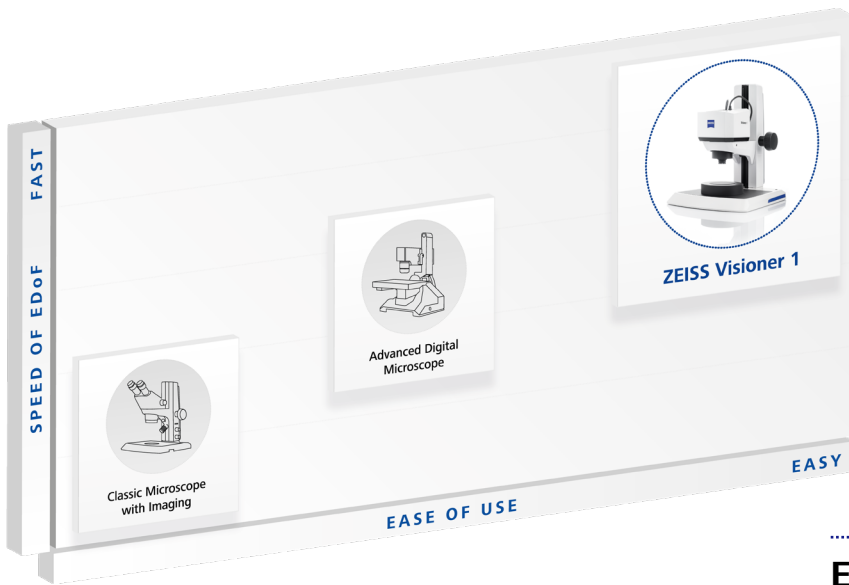
Each micro-mirror is 100x100µm.

# Fastest 3D visualization and documentation with ZEISS ZEN core

## Improve Productivity

ZEISS 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.

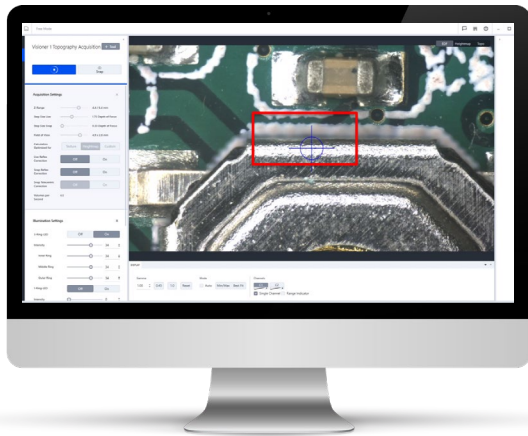


## Easy 2-step Documentation

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.



Real-time Extended  
Depth of Field (EDoF)

Unique MALSTM  
(Micro-mirror  
Array Lens System)

Fastest 3D  
Visualization &  
documentation  
& ZEISS ZEN core

Ergonomic  
operation

Illumination  
& Tech. Specs

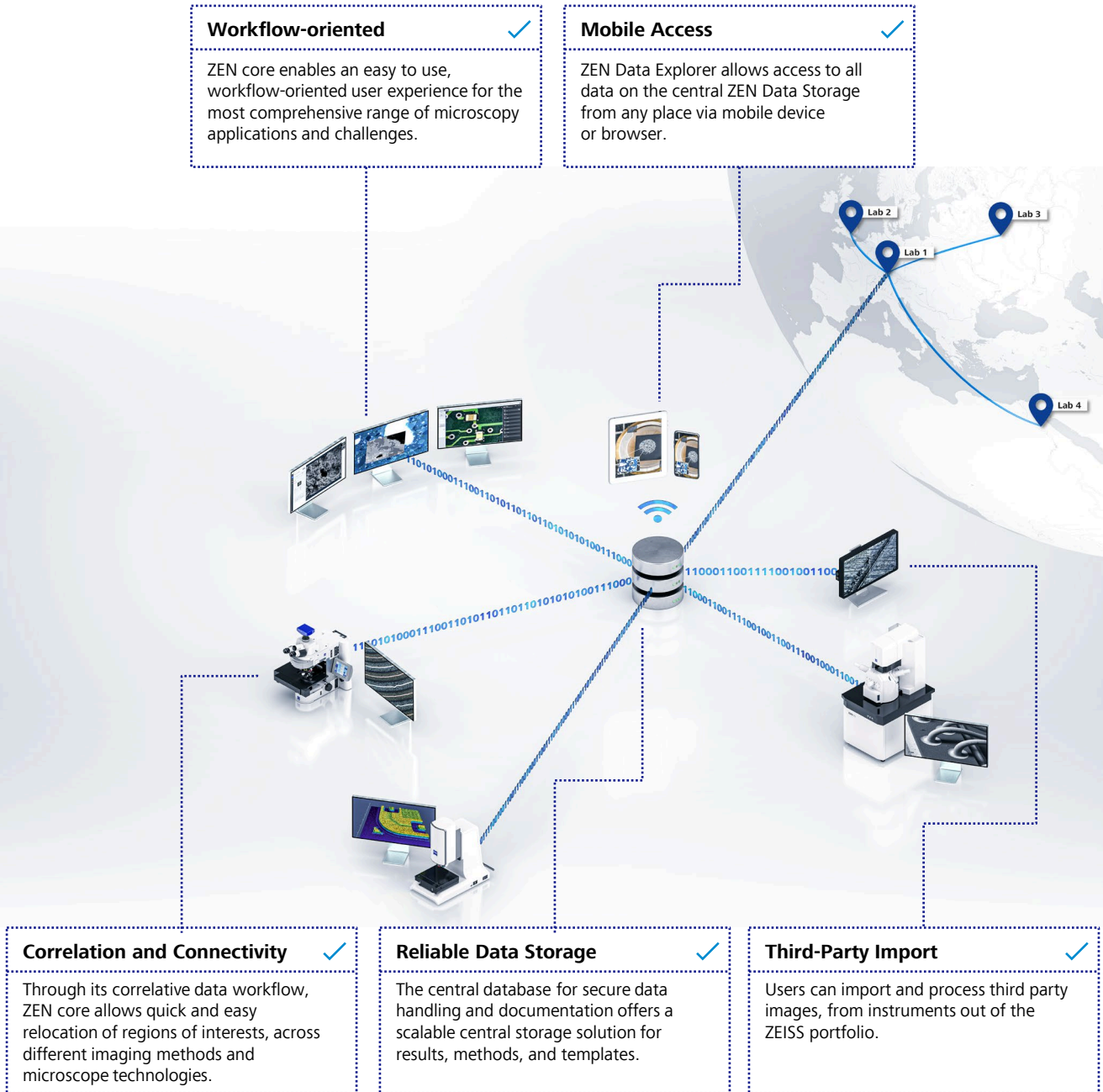
Overview

# 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.



Find out more about the capabilities of ZEN core [www.zeiss.com/zen-core](http://www.zeiss.com/zen-core)



# Ergonomic Operation

## An extension of your senses

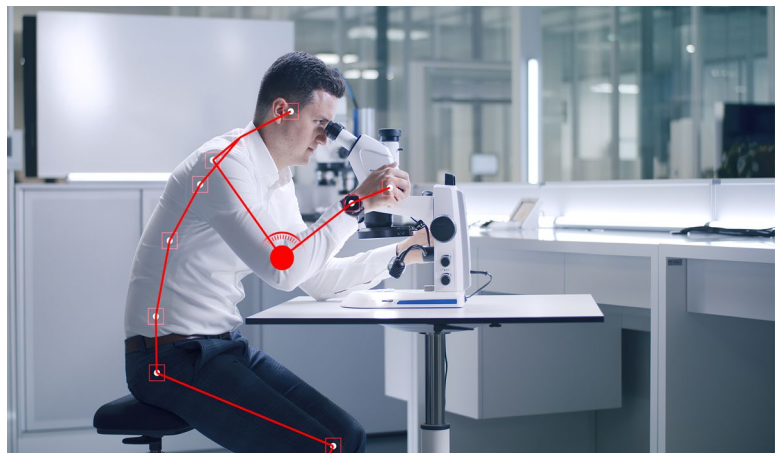
Using the fully digital ZEISS Visioner 1 enables you to set-up your systems once and then focus exclusively on your inspection and documentation task.

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

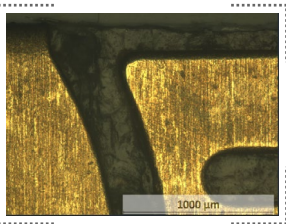
## Key factors for optical inspection

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

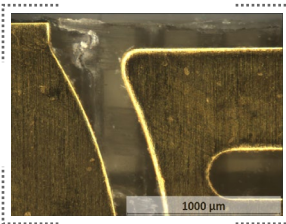
1. Co-axial LED epi-illumination



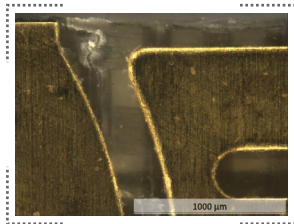
Co-axial Illumination

2. LED ring illuminator with 3 rings and 8 segments

**Optional:** LED ring illuminator with 1 rings (optimized for 2.5x magnification)

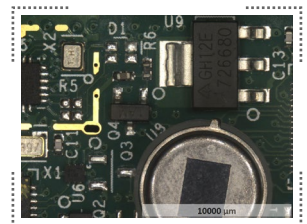
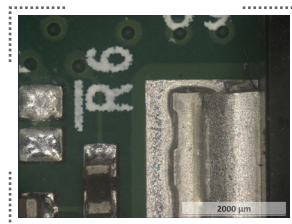
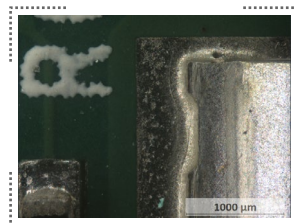


Ring Light Illumination



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

## Magnification



### Magnification

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

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# 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 (MALST<sup>™</sup>) 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.

### 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.**

### Unique MALST<sup>™</sup> (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.

### 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



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