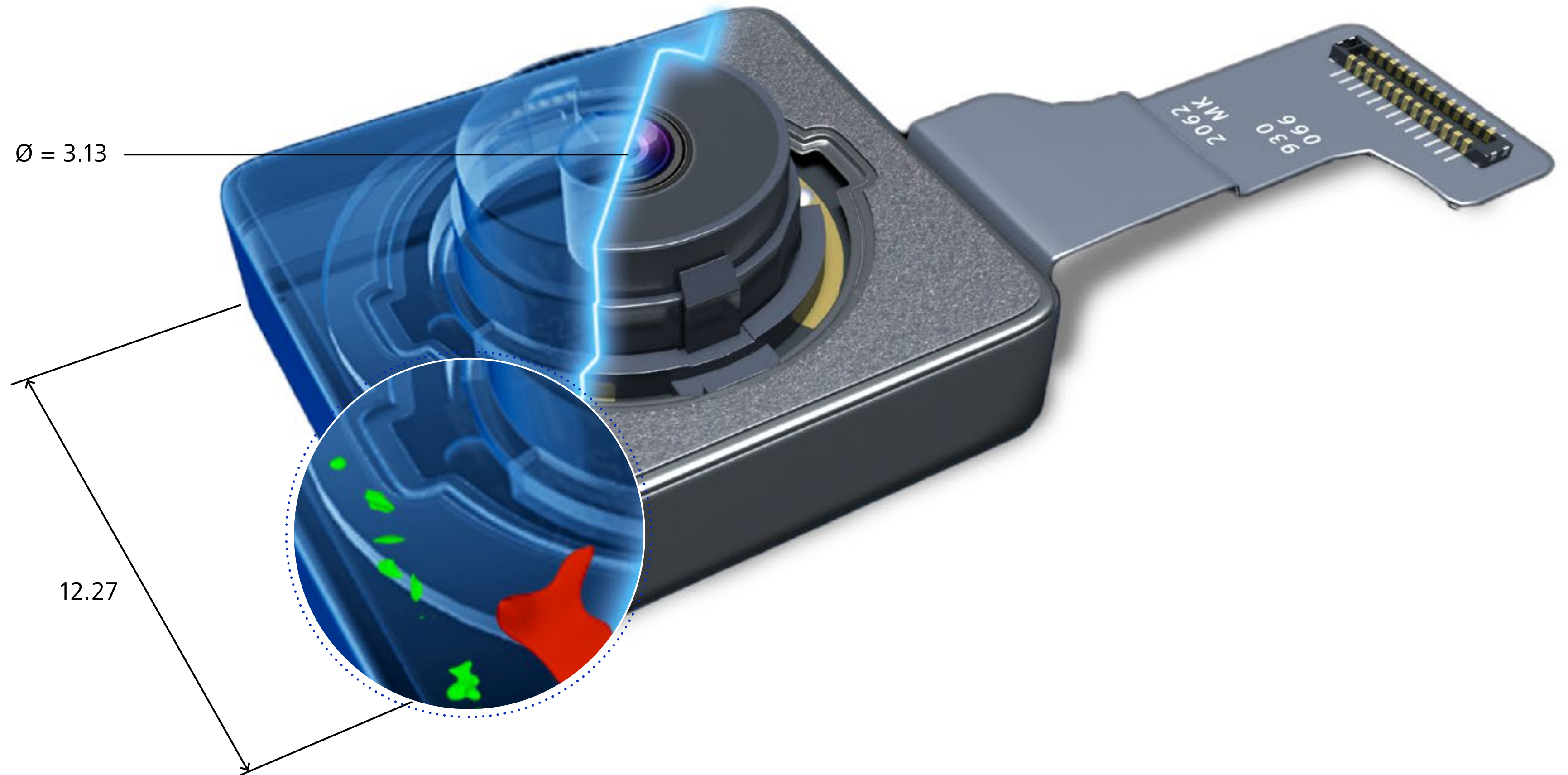


ZEISS Industrial Quality Solutions



Seeing beyond

Electrify Quality Assurance for camera modules



Take a closer look →

Quality at Every Stage of Production

ZEISS solutions for camera modules

In today's world of ever-developing technological advancements, camera technology has firmly established itself at the heart of the modern electronics industry. Its impact covers everything from automotive autonomous navigation to security monitoring devices. And it is of course crucial to the virtual meeting systems and smartphone cameras that keep us more connected than ever.

With over 175 years of quality assurance experience and longstanding collaborations with electronics customers, ZEISS delivers innovation and expertise in development, production, and quality assurance on the camera module market.

- **Verified measurement repeatability with ZEISS PRISMO and ZEISS XENOS**
- **ZEISS Xradia Versa ultra-high resolution CT for optimized development and production**
- **ZEISS O-INSPECT improves efficiency and time to market**
- **ZEISS METROTOM failure analysis for shorter product development cycle**

[Discover details →](#)



Identifying Challenges, Providing Solutions

Manufacturing processes and quality requirements

The manufacturing of a camera module poses many challenges that are specific to this industry. As the use of camera modules extends into electronics, the need for miniaturization has further complicated matters for lens module manufacturers. These demands span the entire value chain from design and manufacturing through to final inspection.

ZEISS understands these specific manufacturing requirements and provides superlative quality assurance solutions for the entire lens barrel – enabling your product and process to be both innovative and efficient. Click the blue buttons in the graphic to find out more.



Tool Manufacturing

Quality Challenges

- Ensure compliance with extremely tight tolerances on lens and lens barrel mold
- Enable high stability and repeatability of injection molding process and high-precision glass molding process
- Non-contact measurement of nanoscale surface roughness, plus contour and topography analysis

ZEISS Solutions

- High-precision tactile measurement with ZEISS XENOS and ZEISS PRISMO
- Material analysis with confocal microscope ZEISS Smartproof 5

ZEISS Systems



ZEISS PRISMO



ZEISS Smartproof 5



ZEISS XENOS



→ Tool Manufacturing

→ Lens Barrel

→ Lens Module

→ Carrier

→ IRCF/CMOS

→ Final Assembly

Lens Barrel

Quality Challenges

- Measurement of diameter, roundness, and coaxiality for proper lens mounting
- Defect detection of flashes, sink marks, or black spots on lens barrels caused by incorrect molding parameters

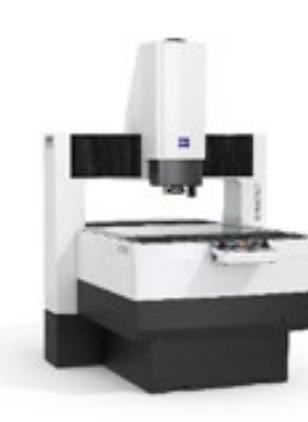
ZEISS Solutions

- Tactile and optical measurement with ZEISS MICURA and ZEISS O-INSPECT
- Optical inspection with light microscopy

ZEISS Systems



ZEISS MICURA



ZEISS O-INSPECT



→ Tool Manufacturing

→ Lens Barrel

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→ Final Assembly

Lens Module

Quality Challenges

- Understand the matching accuracy, check for lens tilt, identify de-center deviation
- Lens spacing and thickness measurement
- In-situ experiment to study deformation after temperature variation

ZEISS Solutions

- Non-destructive analysis with CT systems ZEISS Xradia Versa and ZEISS METROTOM

ZEISS Systems



ZEISS METROTOM



ZEISS Xradia Versa



→ Tool Manufacturing

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Carrier

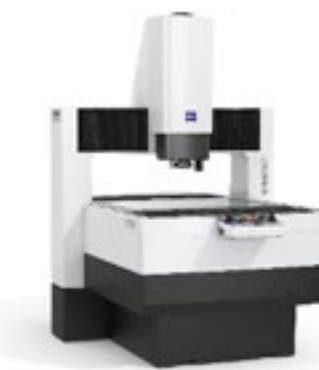
Quality Challenges

- Dimension measurement of complex parts for proper mounting and fastening of various components
- Measurement of micro steps and glue slot line profile to ensure image quality

ZEISS Solutions

- Tactile and optical measurement with ZEISS O-INSPECT

ZEISS Systems



ZEISS O-INSPECT



→ Tool Manufacturing

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→ Carrier

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→ Final Assembly

Infra-Red Cut Filter (IRCF)/Complementary Metal-Oxide Semiconductor (CMOS)

Quality Challenges

- Incoming quality control of final assembly components to avoid rework of large batches
- Identify root cause of product failure through morphology characterization and elemental analysis
- Inspect surface topography characteristics and analyze elements to understand component behavior

ZEISS Solutions

- Failure analysis and material analysis with electron microscope ZEISS EVO

ZEISS Systems



ZEISS EVO



→ Tool Manufacturing

→ Lens Barrel

→ Lens Module

→ Carrier

→ IRCF/CMOS

→ Final Assembly

Infra-Red Cut Filter (IRCF)/Complementary Metal-Oxide Semiconductor (CMOS)

Quality Challenges

- Failure analysis in the event of insufficient image quality
- Assembly status inspection with extreme resolution
- Measurement of assembled parts and inspection of individual component state

ZEISS Solutions

- Non-destructive analysis with CT solution ZEISS Xradia Versa and X-ray system ZEISS BOSELLO

ZEISS Systems



ZEISS BOSELLO



ZEISS Xradia Versa



→ Tool Manufacturing

→ Lens Barrel

→ Lens Module

→ Carrier

→ IRCF/CMOS

→ Final Assembly

Portfolio



ZEISS MICURA

Top precision for small parts

Ideal for meeting increasing accuracy requirements. Particularly suited to complex and compact components with tight tolerances.

[Explore online](#)



ZEISS XENOS

High-end precision

Perfect wherever maximum precision is required, such as in the aerospace and optical industries. Features a measuring range of nearly one cubic meter.

[Explore online](#)



ZEISS EVO

SEM for industrial quality and failure analysis

Provides high-quality data, especially for challenging samples. Particle classification based on elemental composition reveals contamination source.

[Explore online](#)



ZEISS O-INSPECT

Expert in every discipline

For components requiring tactile precision plus an optical solution for surface-sensitive sections. Optimally measures each characteristic every time.

[Explore online](#)



ZEISS BOSELLO

Robust defect detection

Automated or manual non-destructive 2D X-ray inspection for high productivity, quick loading and unloading, fast cycle times, and flexible applications.

[Explore online](#)



ZEISS Smartproof 5

Repeatable inspection and documentation workflows

Fast confocal technology for roughness and topography measurements on sensitive surfaces combined with light microscopy imaging and documentation.

[Explore online](#)



ZEISS PRISMO

When precision matters the most

High-speed scanning with maximum accuracy in the measuring lab, full compliance with ISO quality standards, and no compromise on precision.

[Explore online](#)



ZEISS METROTOM

Future-proof quality control – today

Features an extended measuring volume for larger parts. Compact system with easy user access for simple, safe, and accurate CT measurement.

[Explore online](#)



ZEISS Xradia Versa

Top resolution and contrast

Extends the boundaries of non-destructive 3D X-ray imaging with industry-leading resolution and contrast, extensive filtering, and in-situ analysis.

[Explore online](#)

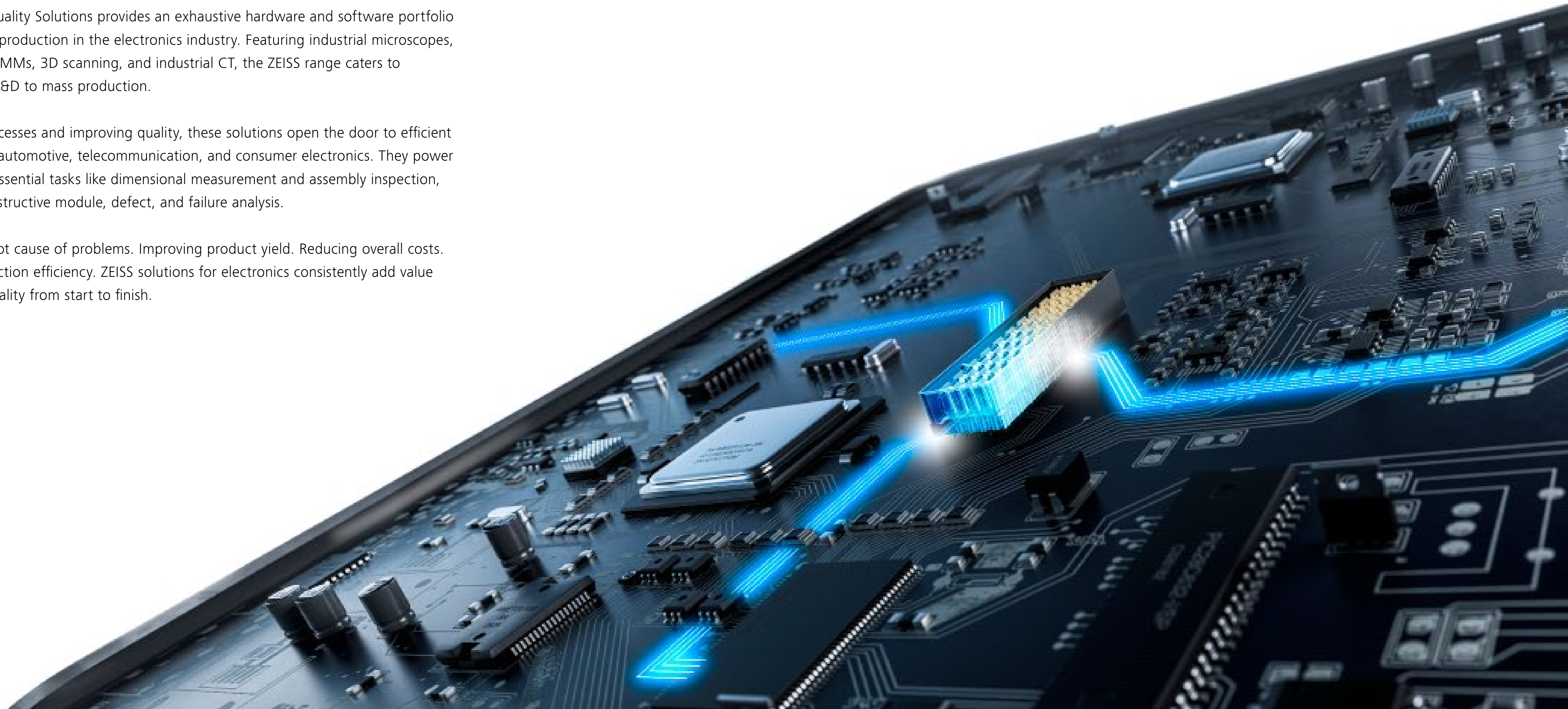
Consistent Quality in an Evolving Industry

Lasting success in electronics with ZEISS

ZEISS Industrial Quality Solutions provides an exhaustive hardware and software portfolio for each stage of production in the electronics industry. Featuring industrial microscopes, optical systems, CMMs, 3D scanning, and industrial CT, the ZEISS range caters to everything from R&D to mass production.

By optimizing processes and improving quality, these solutions open the door to efficient quality control in automotive, telecommunication, and consumer electronics. They power a wide range of essential tasks like dimensional measurement and assembly inspection, as well as non-destructive module, defect, and failure analysis.

Identifying the root cause of problems. Improving product yield. Reducing overall costs. Optimizing production efficiency. ZEISS solutions for electronics consistently add value while ensuring quality from start to finish.



Your global partner –
present in all regions

32

Sales & Service
Organizations

10

Production Sites

100

Business Partners

63

ZEISS Quality
Excellence Centers

As electrical connector module parts are rarely produced in a single location, measurement and inspection issues can occur in any country and at any supplier. Our global network of application engineers and service technicians provide quality assurance solutions to help you keep traceability and quality at a consistently high level. Boasting a comprehensive knowledge base and the world's most accurate measuring machines, ZEISS strives to exceeds expectations around the globe.

Find your perfect solution today.
Get in contact with our global experts.



info.metrology.us@zeiss.com

