ZEISS AIMax cloud II for Aerospace

Fast and intuitive inline measurement

Seeing beyond

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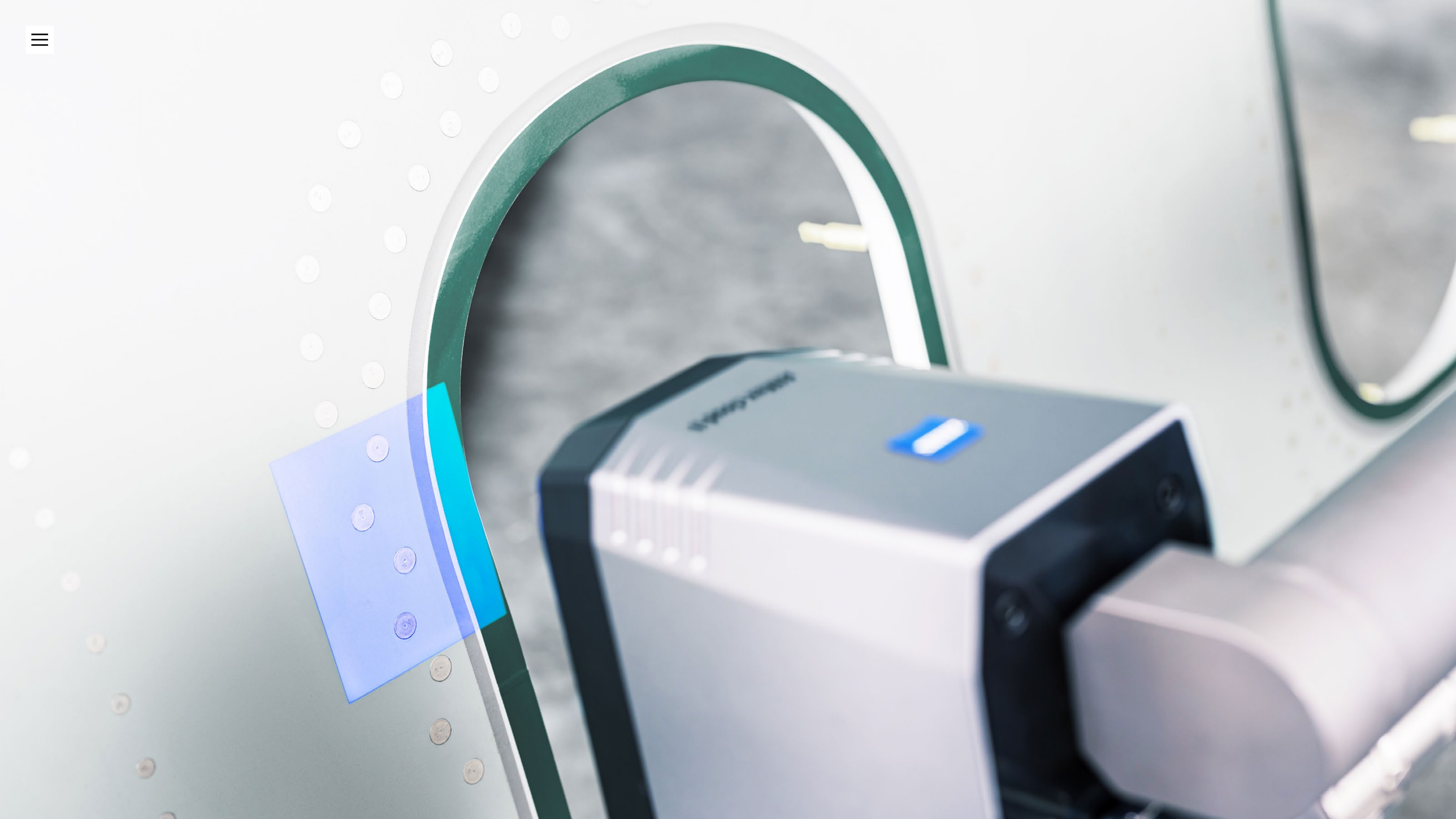
Complete measurement of complex features

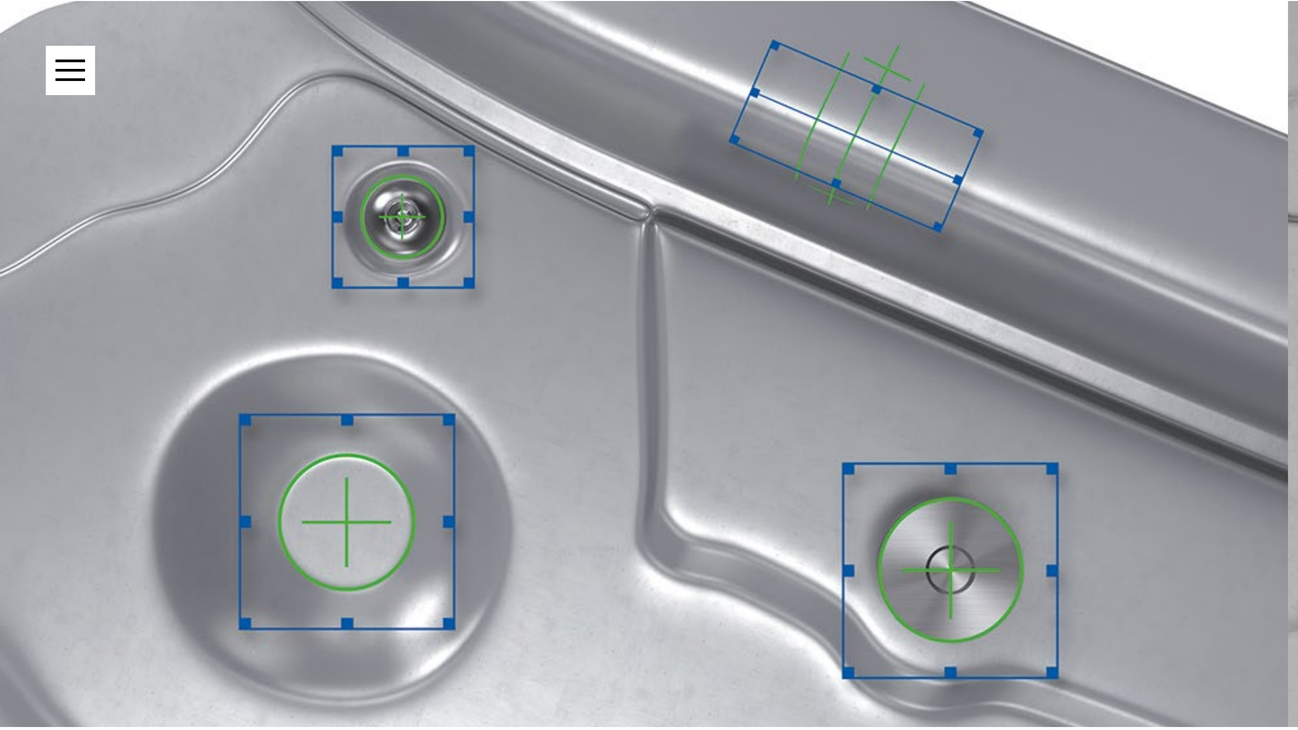
Integrating accuracy and efficiency – inline

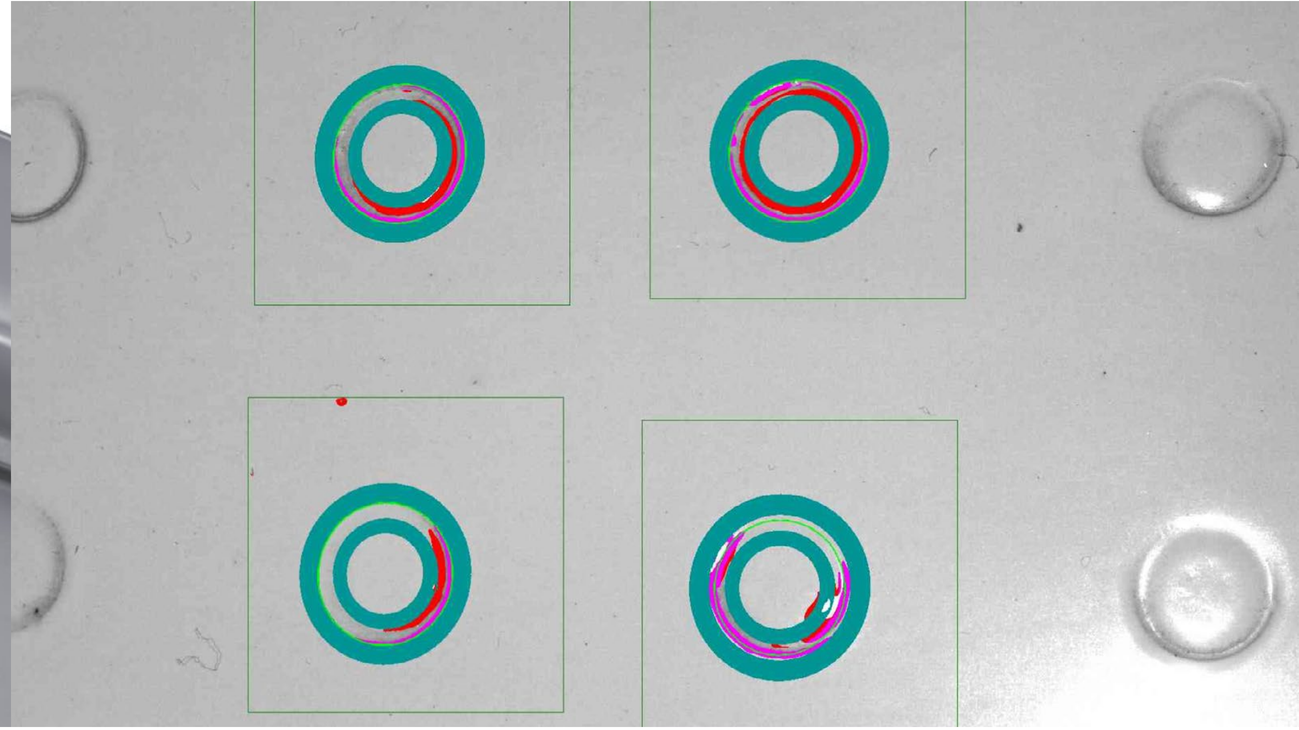
Rivet joints provide several advantages in aerospace, including strength, weight savings, and ease of handling, which makes them a preferred method for joining parts. To inspect these complex features, the ZEISS AIMax cloud II optical 3D sensor is an ideal choice. This robot-guided system uses projection technology and delivers high 3D resolution, facilitating fast and accurate measurements.

Short image acquisition times significantly increase the number of rivet inspections conducted within the available cycle time. This proactive approach to rivet inspection is crucial for maintaining aircraft safety and reliability. The ZEISS AIMax cloud II can also inspect features of the fuselage, wings, tail components, and aircraft doors efficiently and quickly. Furthermore, ZEISS AIMax cloud II can perform edge measurements, hole and bolt positions, and possible presence checks. The measurement setup is fast and intuitive, and the results are visualized immediately after the measurement.

The ZEISS AIMax cloud II is compatible with the ZEISS AICell trace metrology system for inline measurements. This technology provides accurate and reliable measurement and test data, eliminating the need for complex measurements with laser trackers. Consequently, correlation measurements in the measuring room are no longer required.







Feature measurement

- Structural aircraft geometry
- Rivet
- Correct bolt position
- Pinhole layer
- Bending edges

Measuring rivets

Reproducibility typical: 3.3µm
Deviation from manual dial gauges is typically between 10 – 20µm

Advantages at a glance

- High 3D resolution enables measurability and testability of even the smallest features
- Very short image acquisition time
- Measurement of a large number of features in the available inspection time
- Structured illumination allows for the rapid generation of dense point clouds
- Point cloud feature extraction provides higher robustness compared to conventional image processing
- Multiple features can be evaluated simultaneously at a single sensor position
- DLP® technology optimized for inline use
- Fast and intuitive feature extraction setup
- Compact sensor design for optimal accessibility

Clear and concise measurement results with ZEISS INDI

Visualizing complexity with ease

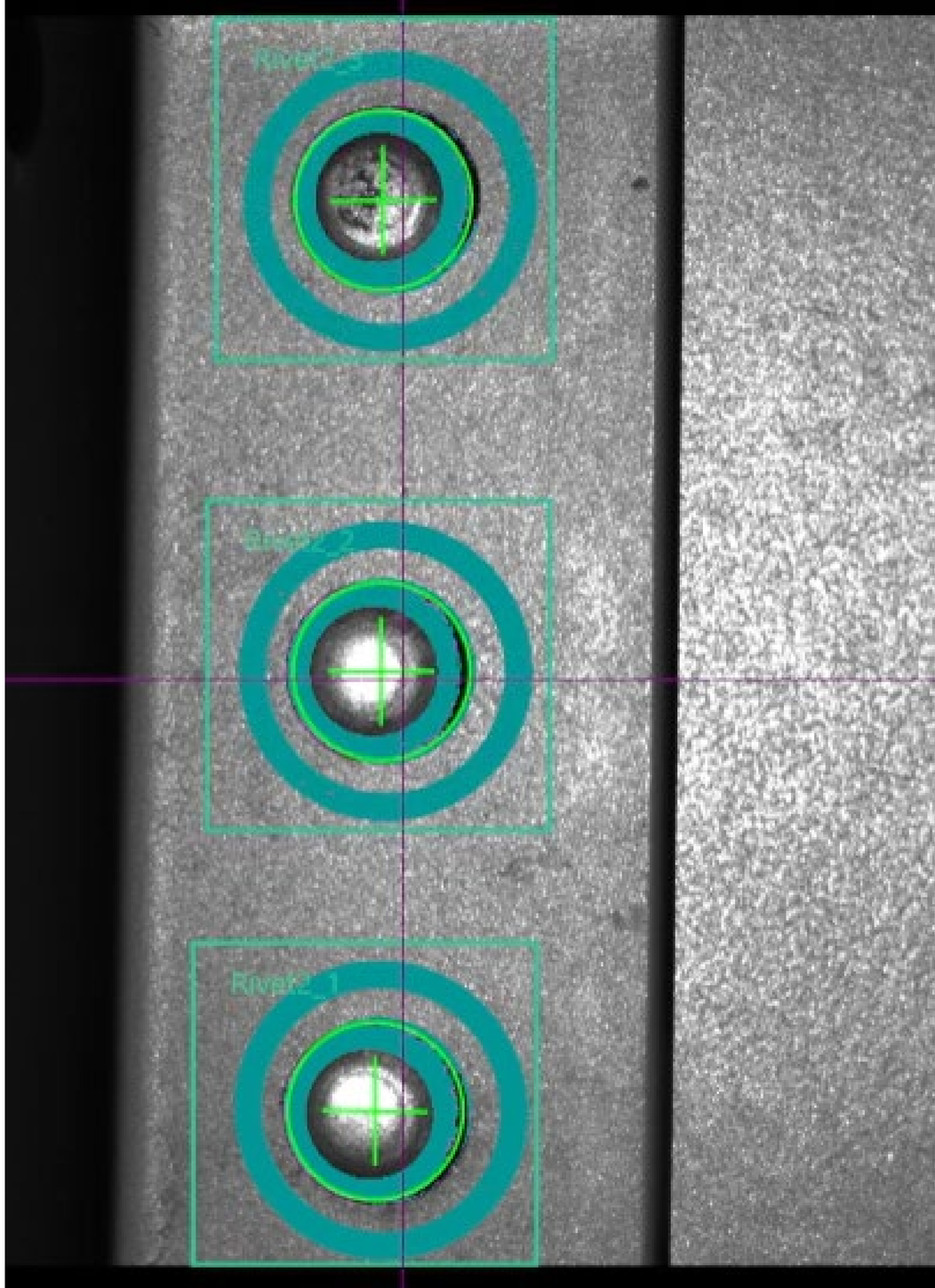
The ZEISS INDI software displays the measurement results right after measuring. Setting up feature extraction in the point cloud is easy and quick, and the software offers further statistical evaluations and measurement plan configurations.

In addition, the images of the affected measuring points can be called up and analyzed for a targeted and fast root cause analysis.

ZEISS AIMax cloud II software provides various functions to boost efficiency, minimize costs, and increase productivity.

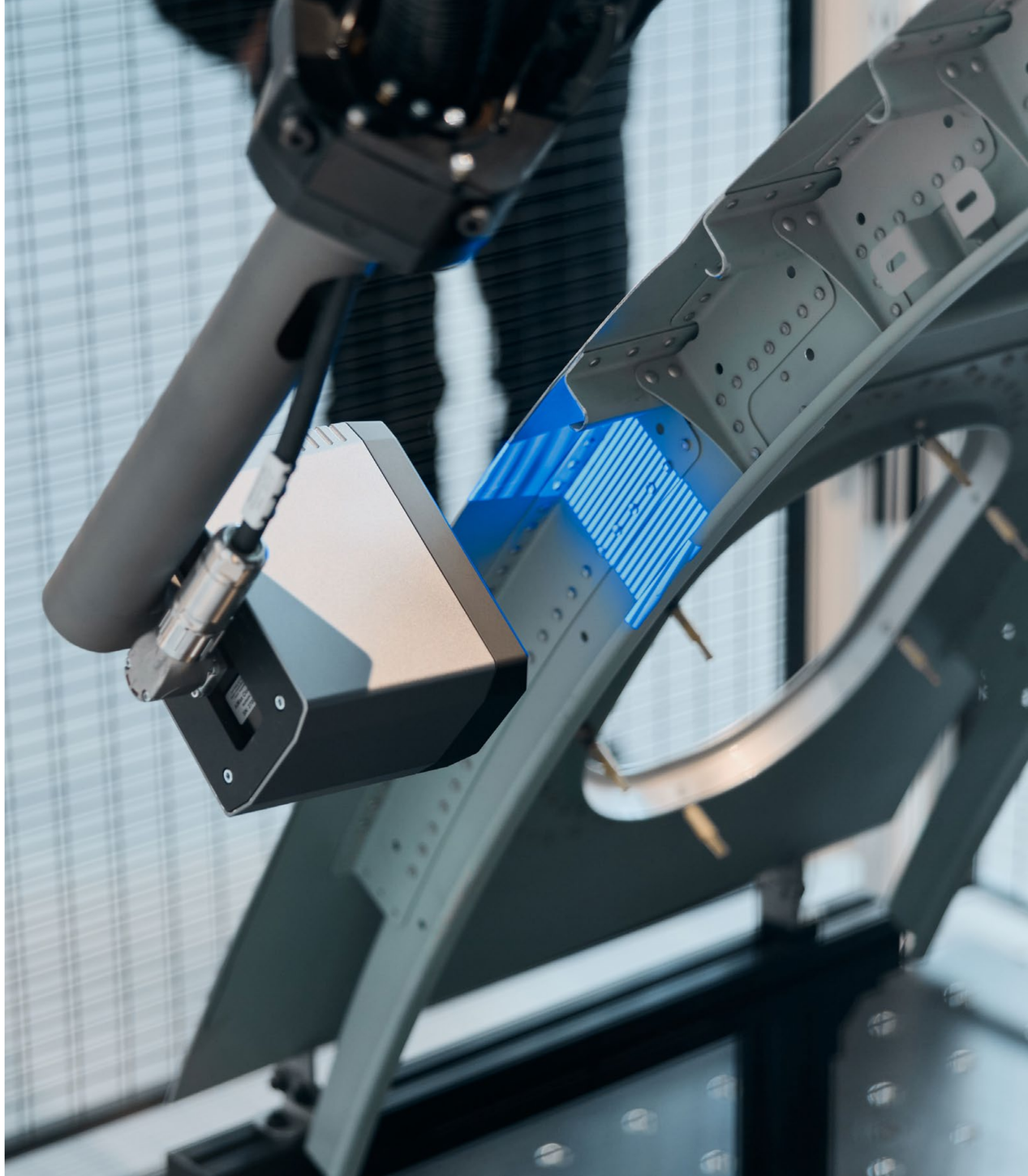
These functions include:

- Identifying errors at the source
- Eliminating manual, operator-dependent, and sometimes subjective results
- Analyzing measurement curves and trends per measuring point
- Visualizing the generated point cloud
- Displaying all measurement results on a component



Technical features

Camera	digital (USB3)
Camera technology	monochrome
Camera resolution	2500 px x 2264 px
Illumination	DLP® projector in the range of 460 nm
Measuring distance	163 mm
Measuring volume	75 mm x 86 mm x 48 mm
Dimensions	96 mm x 168 mm x 145 mm
Weight without tool	3 kg
Temperature (compensated)	10°C to 40°C
Image acquisition time	~ 0,25 seconds / measuring position for typical features



Precision in structural safety

The ZEISS portfolio for holistic quality assurance

ZEISS INSPECT
Dewarp/virtual clamping
3D full-field evaluation
GD&T
Virtual assembly

ZEISS AIMax cloud II
Geometrical inspection of edges, holes and rivets

ZEISS ARAMIS 3D Camera
Wing testing
Mechanical testing of landing gear

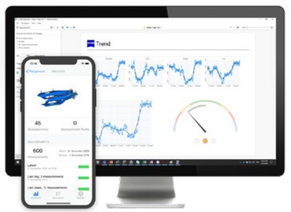
ZEISS ATOS LRX
Large area scanning for fuselage checks pre/post paint

ZEISS T-Scan hawk 2
Problem resolution with quick, portable, 3D metrology
Dent analysis in MRO

ZEISS ScanBox
High throughput measurement of diverse product ranges (ribs, spars, fuselage sections)

ZEISS ABIS 3
Surface defect analysis

ZEISS PRISMO
Precise multisensoric CMMs from the small to large safety critical parts



ZEISS PiWeb
Visualization of the product “right first time”, trends and root cause analysis

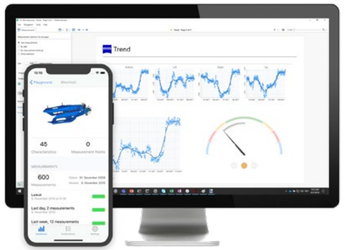
Wing inspection

ZEISS T-Scan hawk 2
Dents and defects inspection

ZEISS ATOS LRX
Large area scanning for fuselage checks pre/post paint and mold

ZEISS ARAMIS 3D Camera
Functional tension testing

ZEISS PRISMO
Precise tactile inspection of structural components



ZEISS PiWeb
Process feedback & improvement, trend and root cause analysis

Want to learn more about ZEISS AIMax cloud II for Aerospace?

We are happy to provide you with more information about our products and services for your aerospace application.

Contact us

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