

ZEISS AICell trace

Process Monitoring and Metrologically
Traced Inline Metrology in One Cell



Seeing beyond

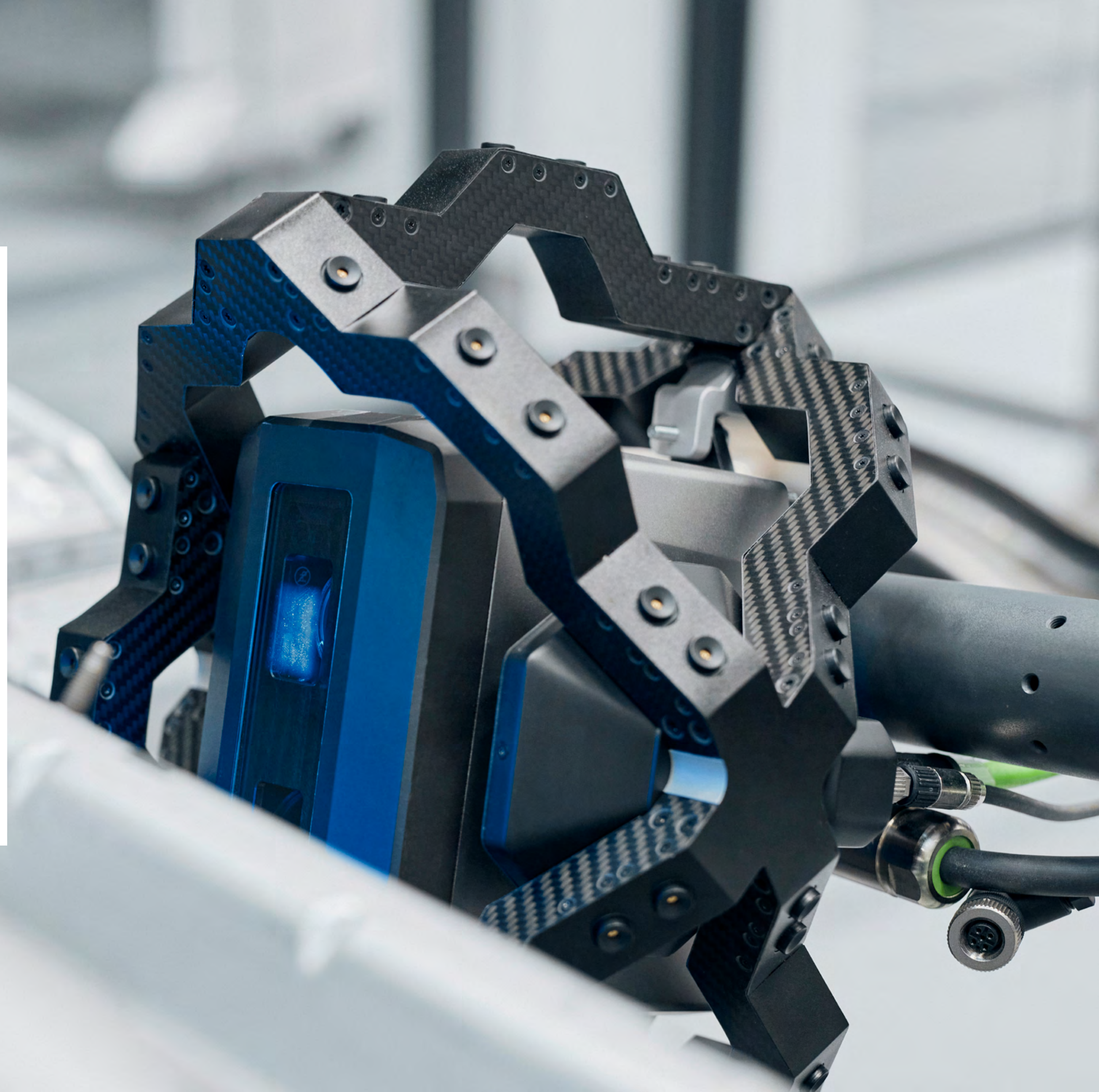


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Integrated solution for more productivity and efficiency

In car body manufacturing, there is an increasing demand for integrating metrological solutions directly into the production line.

The digital transformation of inline metrology reduces the workload of measuring rooms while significantly increasing the number of measured parts. Thus, the shop floor staff is able to immediately detect quality issues where they arise and to proactively manage the production process. ZEISS AICell trace correlation-free inline measuring cell allows for implementing this strategy: It combines process monitoring and metrologically traced inline metrology in one cell.

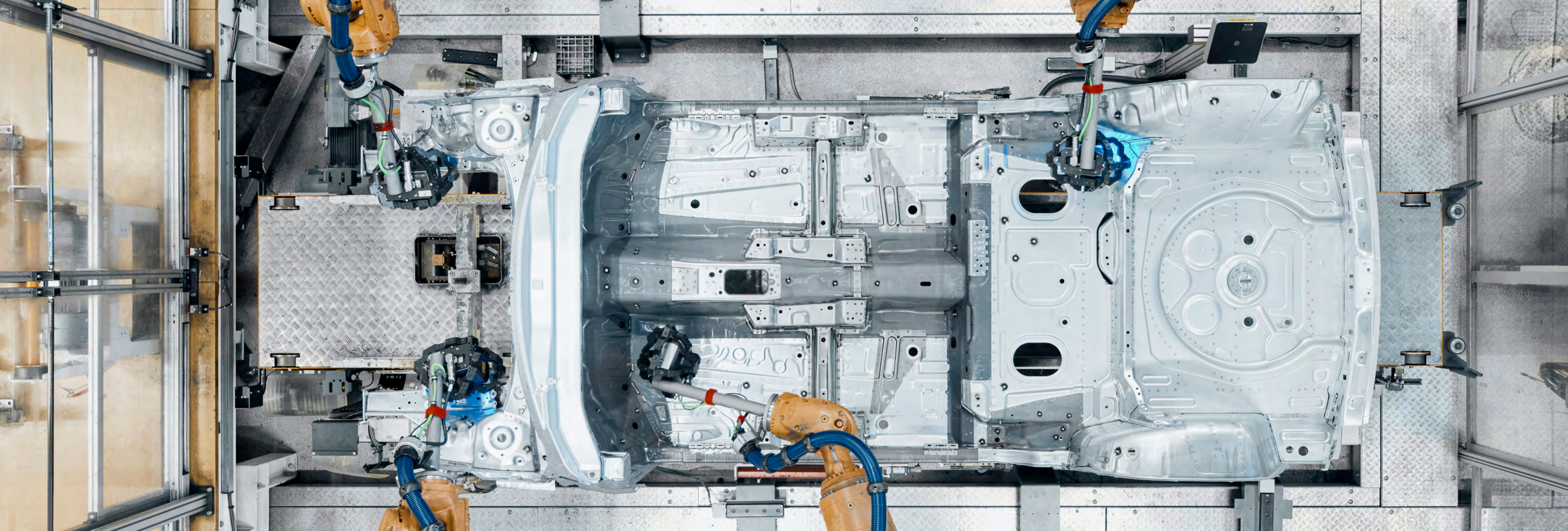




Real-time process monitoring & traceable metrology in the production line

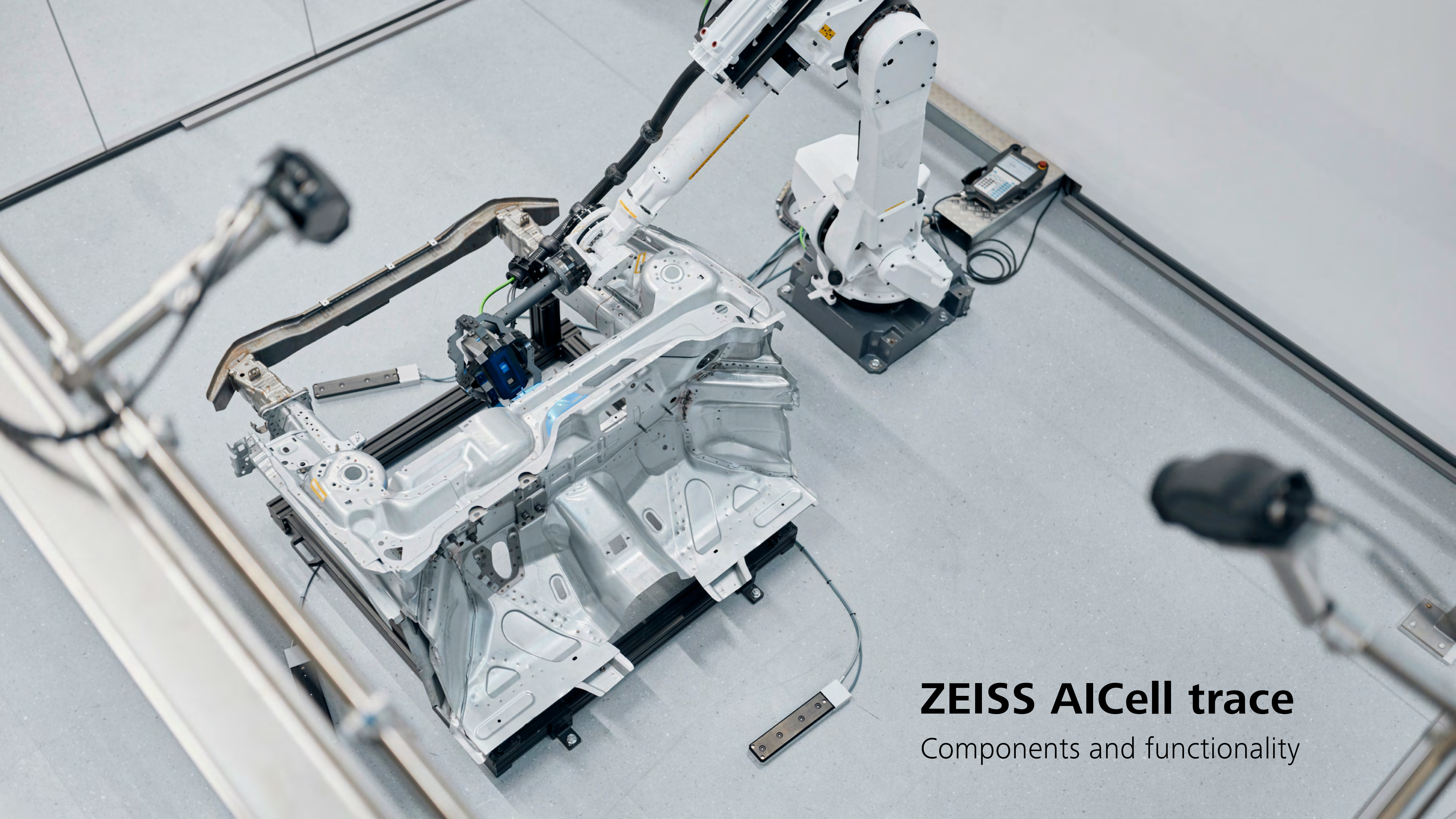
The ZEISS AICell trace correlation-free inline measuring cell enables both the real-time process monitoring of complex features and the support of the production ramp-up. The innovative tracking technology used in combination with the fast ZEISS AIMax cloud 3D sensor monitors the sensor position on the robot arm with high precision. The sensor generates highly dense point clouds and measures very complex features such as bolts, edges, holes, weld nuts behind sheet metal and rivets directly inline.

By using this technology, all relevant digital quality information is provided and all measuring points and functional dimensions relevant for continuous process monitoring are measured in cycle time. The complete measuring point plan can be realized through rolling measurements or pause programs.



The benefits at a glance

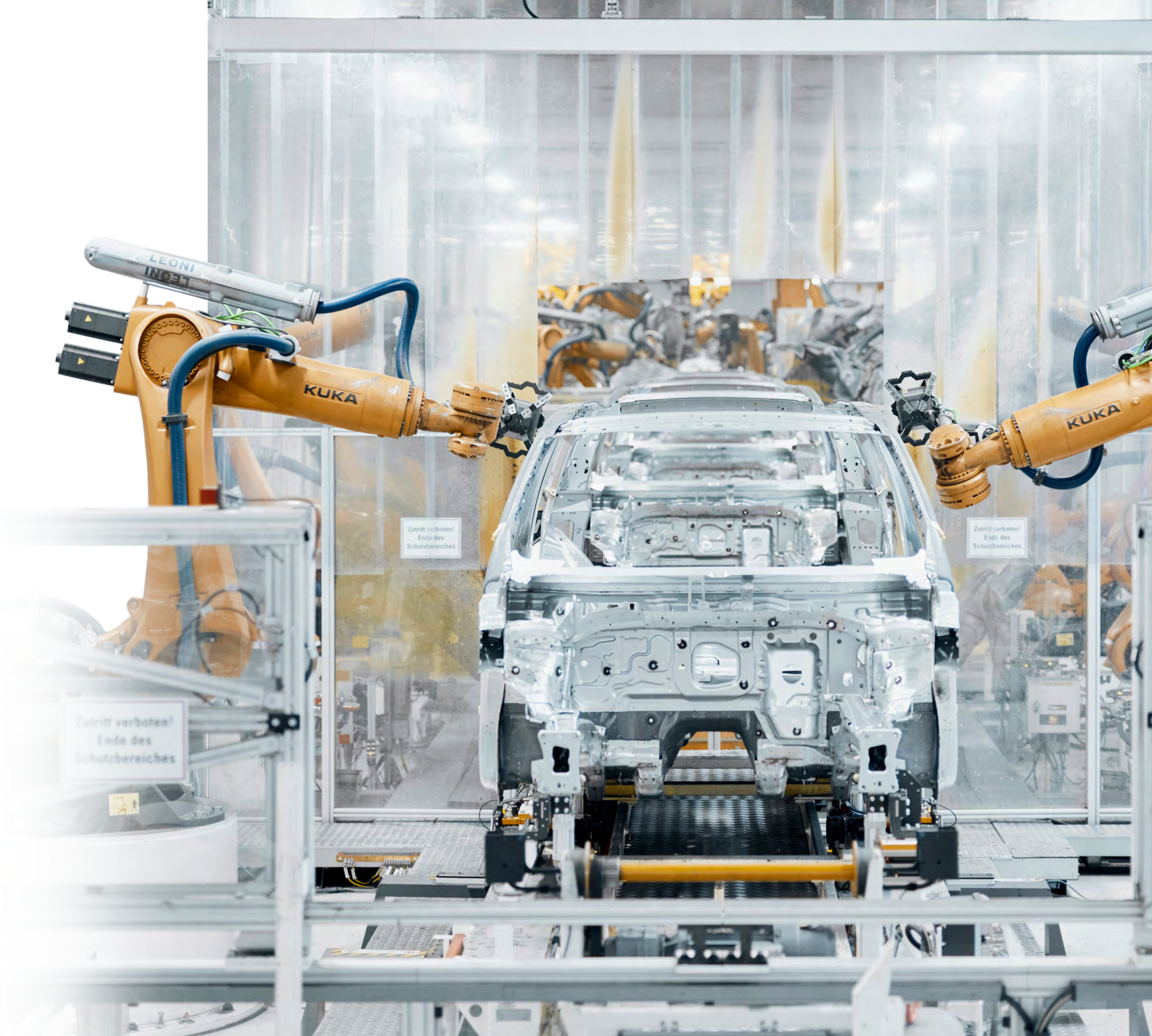
- Correlation-free
- Reliable measuring results starting with the first part
- Use in the production environment including temperature fluctuations
- Robot-independent accuracy
- Measurement of single parts and entire car bodies directly inline
- Metrologically traceable serial measurements in the production line without manual effort – Reduced workload of the measuring room
- Prevention of logistical and handling overhead
- Significantly increased sample rate



ZEISS AICell trace
Components and functionality

Applications

ZEISS AICell trace is the perfect solution for future-oriented body shops. Moreover, the system is also suited for implementation in other demanding industries such as aerospace or transport. Significant deviations of pre-defined features are fully inspected within the production cycle.



Visualization of the measuring results

ZEISS INDI

Measuring results are visualized in the incorporated ZEISS INDI software right after measurement. The extraction of features in the point cloud is both easy to configure and easy to use. The software also allows for further evaluating and configuring the measurement plan.

Moreover, images of the measuring points concerned can be accessed and analyzed for a target-oriented and fast root cause analysis.

The software functions of ZEISS AICell trace ensure efficiency and productivity increases while minimizing costs:

- Timely error detection including Q-Stop functionality
- Evaluation of image files for a target-oriented root cause analysis
- Evaluation of measuring procedures and trends by measuring point
- Visualization of the generated point cloud
- Visualization of all measuring results for a part

Customer testimonial

“In the subassemblies, as you can see in Underbody 2 behind me, it is important to measure complex features such as bolts, nuts behind sheet metal. For such cases, we have used ZEISS AICell trace system including an AIMax cloud sensor which is able to measure these complex features.”

Kai Petratschek
QA-Metrology Series,
Volkswagen Aktiengesellschaft



Technical data

Camera	Digital (GigE)
Camera technology	Monochrome
Camera resolution	2048 px × 2048 px
Illumination	DLP® projector in a range between 450 nm and 620 nm
Measuring distance	165 mm
Measuring volume	80 mm × 80 mm × 40 mm
Measuring time	< 0.5 seconds Measurement position for typical features
Metrological traceability	Acceptance test DIN/ISO 10360 – 8 / 13





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