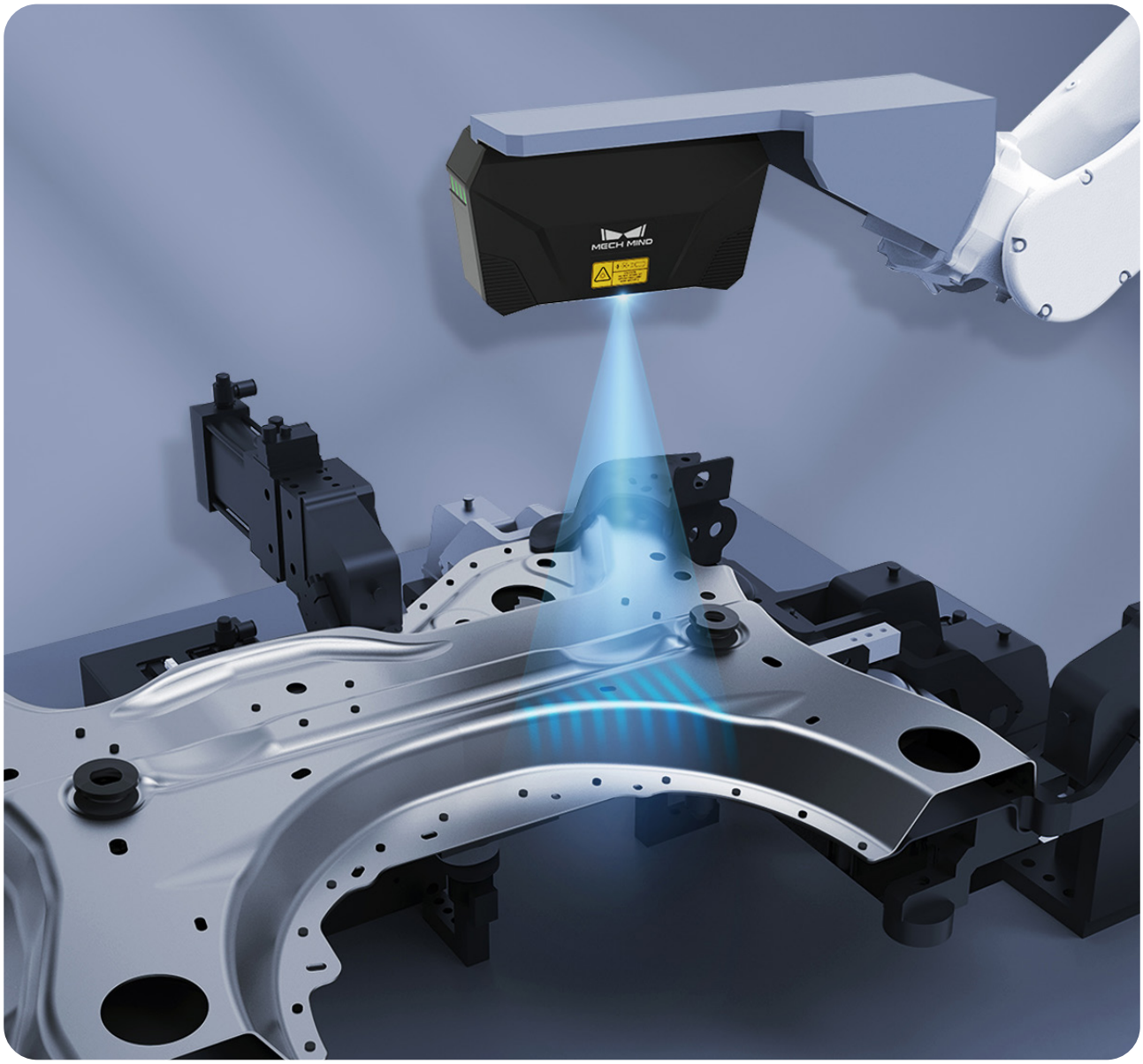


Mech-Mind Inline Measurement Solution

For high-precision 3D measurement and quality control in automotive, EV battery and more industries

Mech-Mind Inline Measurement can meet the quality control requirements of major manufacturing processes such as part manufacturing and component assembly in the automotive and EV battery industries. This efficient solution provides high-speed & high-accuracy measurements of GD&T (geometric dimensioning and tolerancing), ensuring maximum product quality and high factory productivity.

Discover the Benefits of Mech-Mind Inline Measurement

Wide measurement range

Various automotive components, sub-assemblies, and the complete body-in-white with hard-to-scan features, such as bolts, threaded holes, round holes, and slotted holes, can be accurately measured.

Industry-leading accuracy

Mech-Eye UHP-140-GL industrial 3D camera with micron-level accuracy and advanced 3D measurement algorithm delivers measurement accuracy of **± 0.2 mm**.

High-speed measurement

With advanced measurement logic throughout the solution, the measuring speed can be up to **2 secs** per measurement point.

Easy setup & fast deployment

Quickly set up inline measurement projects with Mech-Vision. Integrate the whole processes in Mech-Metrics, such as configuration, logic deployment and data analysis.

Reliable measurement results

The temperature drift compensation algorithm makes it possible to reduce the effects of changing temperatures and ensure that the measurement system stays accurate and reliable in harsh industrial environments.

Real-time quality control

Make your decisions on reliable information. Get real-time data processing and analysis, fast feedback on quality issues, and process optimization.

Ready for Inline 3D Measurement

Mech-Mind Inline Measurement is used in major manufacturing processes to provide 100% quality control.

Automotive body-in-white

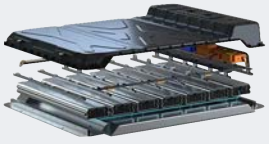
- Applications: Body components and BIW (Body-in-White) measurement in BIW welding and assembly.

EV battery

- Applications: Height, flatness, and surface measurement in battery tray manufacturing, riveting, and welding.

Subframe

Bumper beam



Tray

Make Quality Control Easier

Automation presents a number of challenges for quality control in automotive and EV battery production. Mech-Mind Inline Measurement solves these challenges and makes automated quality control so much easier.

Application 1

Subframe Inline Measurement

Challenges

- Unqualified subframes can lead to warping as well as costly rework and recalls. Our customer, a large automotive manufacturer, needed a solution to meet strict GD&T requirements.

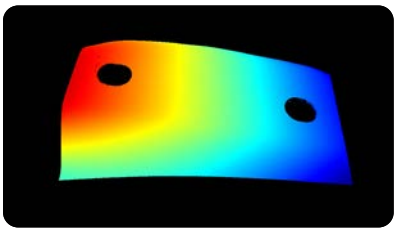
Solution Highlights

- The Mech-Eye UHP-140-GL was strategically installed to generate **high-quality point cloud data** of subframes with highly reflective surfaces.
- Advanced algorithms enable measuring different part sizes and features (threaded holes, studs, slotted holes, etc.).
- Dual-camera collaboration enables measuring large parts at a faster speed.

Solution Results

- Measurement accuracy: **± 0.2 mm**
- Measurement results were stored in real-time, thus providing for total traceability.

Project site



Round holes (point cloud rendered by height)

Application 2

Subframe Inline Measurement

Challenges

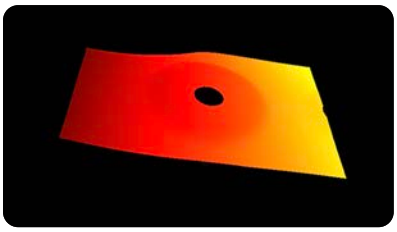
- Inline measurement needs to keep up with the fast pace of highly automated manufacturing processes. Our customer, an international Tier 1 auto parts plant, needed real-time data management and service without interrupting the production cycle.

Solution Highlights

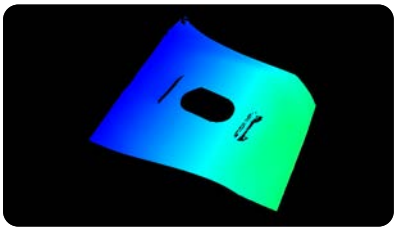
- **30+ features are measured within 100 seconds** to meet high-volume production requirements.
- The Mech-Eye UHP-140-GL was strategically installed to generate high-quality point cloud data of small features (e.g. bolts, threaded holes, slotted holes, etc.).

Solution Results

- Real-time data analysis and tailored reports.
- Achieved highly accurate and reliable measurement.



Round hole (point cloud rendered by height)



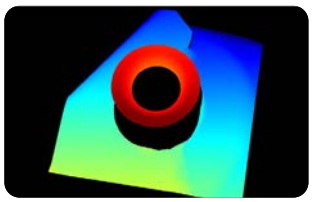
Slotted hole (point cloud rendered by height)

Advanced Optical Technology and Easy-to-Use Software

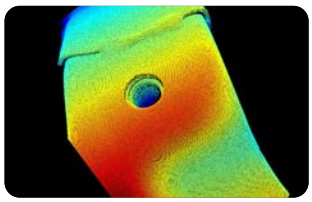
Mech-Eye UHP-140-GL Industrial 3D Camera with Micron-Level Accuracy

- Combined with **advanced image fusion** and **anti-reflection 3D reconstruction algorithms**, Mech-Eye UHP-140-GL can be widely used for inspection and measurement applications to meet strict GD&T requirements.

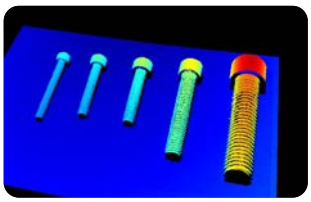
Mech-Eye UHP-140-GL



Reflective round hole



Threaded hole



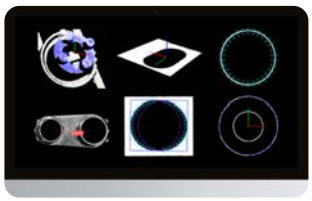
Screws

Point clouds obtained by Mech-Eye UHP-140-GL @ 0.3 m, color rendered by height.

Mech-Vision Machine Vision Software

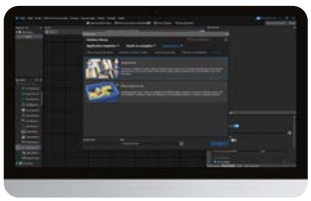
- Supports drag-and-drop measurement and point cloud processing modules to quickly set up various measurement projects.

Fully 3D visualization



Advanced algorithms

Complete visual function



Easy setup & fast deployment

Mech-Metrics Inline Measurement Software

- Manages key processes of inline measurement to ramp up deployment efficiency, such as communications configuration, measurement setting and process management.
- Visualizes the measurement data to better understand real-time process trends and product characteristics.

Data overview

SPC analysis

Trends

Data display

3D VISION & AI FOR ROBOTS AND MORE

Get the most from Mech-Mind's 3D vision - get in touch with us!

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E-mail (PR & marketing): marketing@mech-mind.net

Learning guidance to deploy your vision application STEP BY STEP, please visit

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