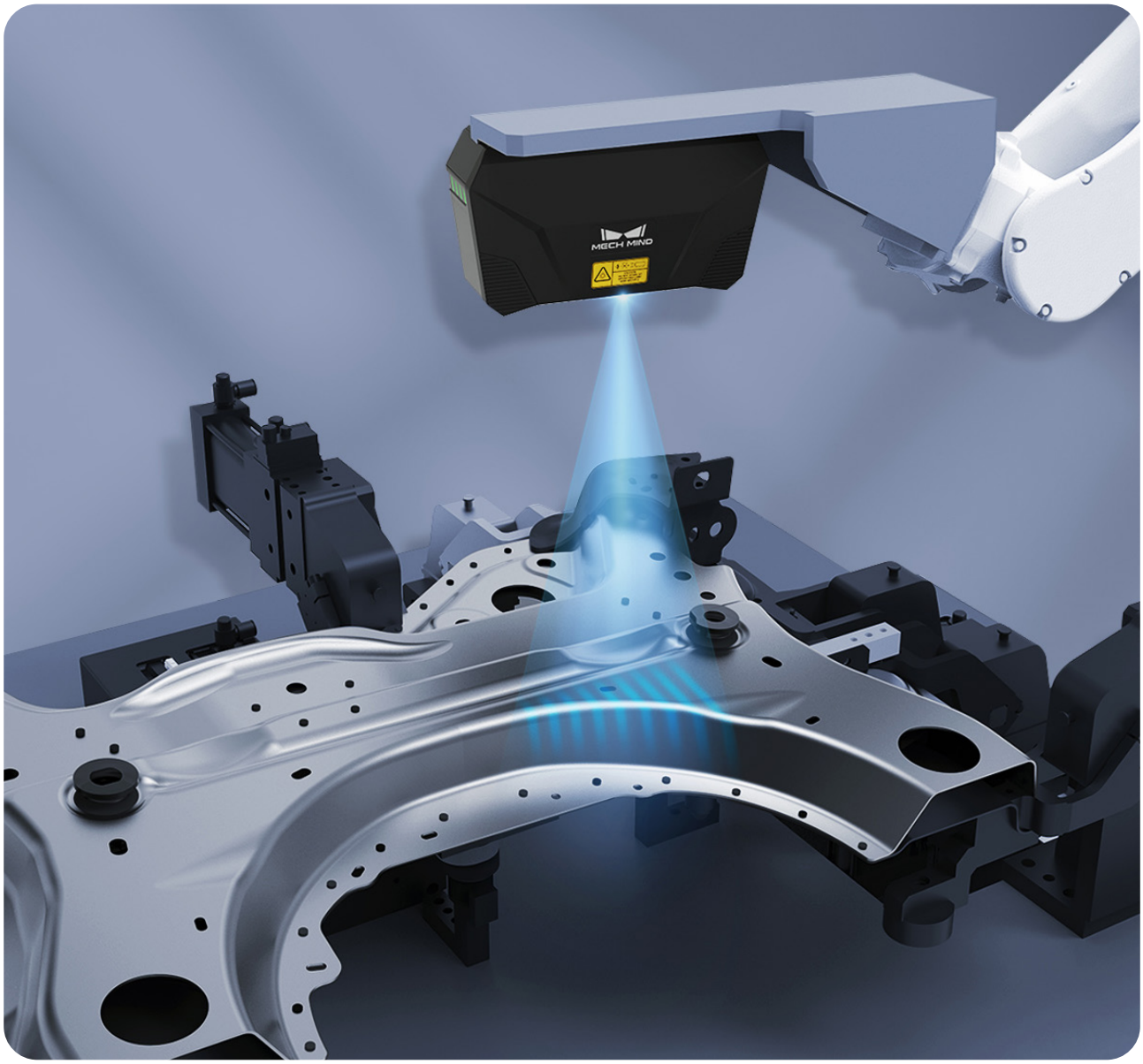


Mech-Mind Inline Measurement Solution

For 3D measurement applications in industries such as automotive and EV battery production

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 industrial 3D camera with micron-level accuracy and advanced GD&T measurement algorithm deliver 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.

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.

Easy setup & fast deployment

Drag-and-drop measurement and point cloud processing modules can be used with Mech-Vision vision software to quickly set up different measurement projects.

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.

New energy battery

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

Tray

Body side frame

Subframe

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

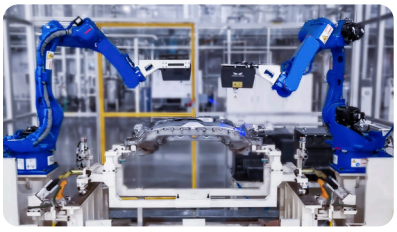
- Unqualified subframes can lead to warping as well as costly rework and recalls. Our customer, a large automotive manufacturer, needed a solution to meet strict GD&T requirements.

Solution Highlights

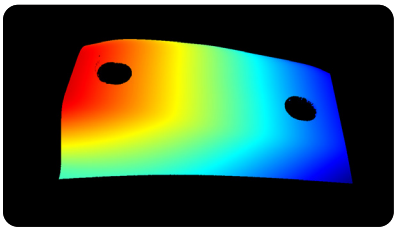
- The Mech-Eye UHP-140 was strategically installed to generate **high-quality point cloud data** of subframes with highly reflective surfaces.
- Advanced algorithms enable measuring different part sizes and features (threaded holes, studs, slotted holes, etc.).
- Dual-camera collaboration enables measuring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

Solution Results

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



Project site



Round hole (point clouds rendered by height)

Application 2

Subframe Inline Measurement

Challenges

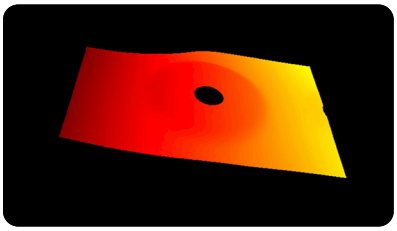
- Inline measurement needs to keep up with the fast pace of highly automated manufacturing processes. Our customer, an international Tier 1 auto parts plant, needed real-time data management and service without interrupting the production cycle.

Solution Highlights

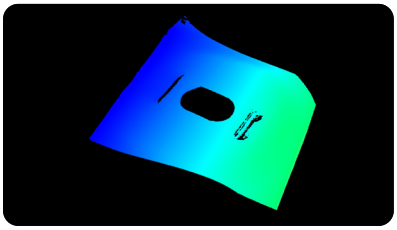
- **30+ features are measured within 100 seconds** to meet high-volume production requirements.
- The Mech-Eye UHP-140 was strategically installed to generate high-quality point cloud data of small features (e.g. bolts, threaded holes, slotted holes, etc.).

Solution Results

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



Round hole (point clouds rendered by height)

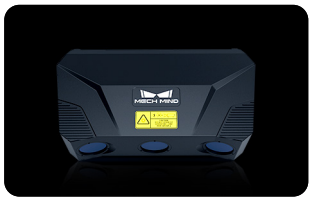


Slotted hole (point clouds rendered by height)

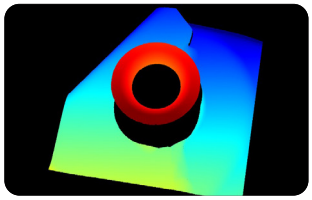
Advanced Optical Technology and Easy-to-Use Software

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

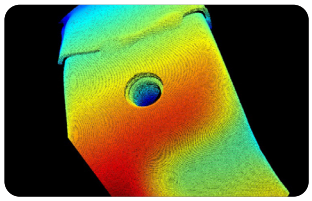
- Combined with **advanced image fusion** and **anti-reflection 3D reconstruction algorithms**, Mech-Eye UHP-140 can be widely used for inspection and measurement applications to meet strict GD&T requirements.



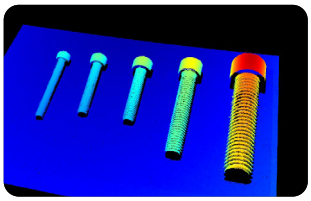
Mech-Eye UHP-140



Reflective round hole



Threaded hole

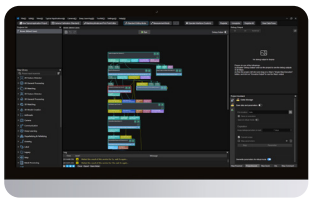


Screws

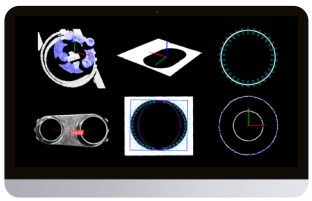
Point clouds obtained by Mech-Eye UHP-140 @ 0.3 m, color rendered by height.

Mech-Vision Machine Vision Software

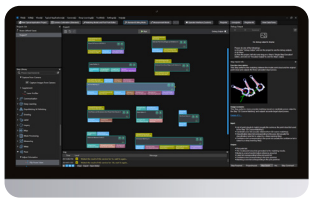
- Supports drag-and-drop measurement and point cloud processing modules to quickly set up various measurement projects.



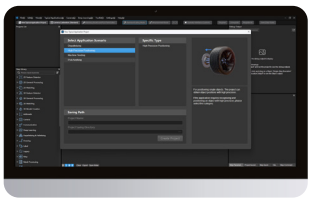
Fully 3D visualization



Advanced algorithms



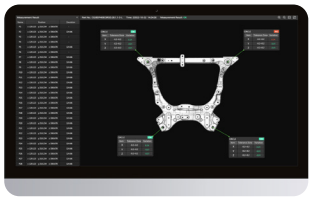
Complete visual function



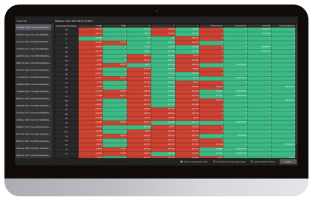
Easy setup & fast deployment

Mech-Metrics Measurement Software

- Visualizes the measurement data to better understand real-time process trends and product characteristics.

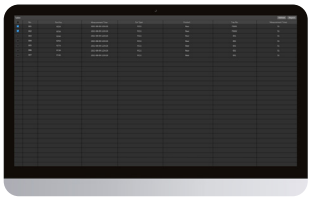


Measurement data overview



Data display

SPC analysis



Data summary

3D VISION & AI FOR ROBOTS AND MORE

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