

Mitutoyo

CUSTOMER CASE STUDY

PLOTWORK x Mitutoyo



PLOTWORK | Moriguchi, Osaka

CNC vision measuring system equipped with a touch probe improves efficiency in measuring complex machined parts

PLOTWORK is a company with strong technical capabilities in resin and metal machining and processing that actively undertakes orders involving difficult processes and short delivery times, which other companies in the industry would decline to accept.

This is a case study of the company's efforts to improve measurement efficiency as it continuously expands its business.

Model introduced: QUICK VISION Active – CNC Vision Measuring System

1 Customer's Business

From resin machining to aluminum machining and 5-axis metal machining

PLOTWORK was founded in 1996 as a manufacturer specializing in prototype machining of resin parts. Responding proactively to customer requests, the company began to engage in metal machining (mainly aluminum), small-lot mass production, and hybrid processing of resin and metal. PLOTWORK's customers come from a wide range of industries, including automotive, medical equipment, aircraft, OA equipment, and semiconductor manufacturing equipment, and the company supports manufacturing in these industries.



Complex resin and metal machined parts, machined by PLOTWORK



President and CEO Tsunenoshin Tamura

Actively responding to high-precision, high-difficulty, and short lead-time requests

“At PLOTWORK, we rarely process products with simple shapes. We pride ourselves on leading the way in undertaking projects with difficult shapes that other companies in the industry shy away from,” says President Tamura. The company was one of the first to introduce 5-axis machines, which were still in the developmental stages in Japan, in order to consistently process difficult products that require a high degree of precision. In addition, the company has built a system that operates 24 hours a day, 365 days a year, to supply products exactly when customers require them. Their dedication to handling high-precision, high-difficulty, and short lead-time requests has earned the trust of their customers.

2 Challenges Faced

Establishing an inspection system that offers both high precision and speed

While PLOTWORK actively accepts difficult processing and short lead-time requests that other companies in the industry would

decline, achieving both high precision and speed is not easy. In addition to in-process and final inspections, the company also had human inspectors perform intermediate inspections, and technicians other than the machinists perform inspections to ensure precision through the eyes of as many people as possible. However, because many of the products processed by PLOTWORK had complex shapes that took a long time to inspect, which increased utilization of the existing Coordinate Measuring Machine and resulted in longer waiting times, there was a need to improve measurement efficiency.

Business expansion pushed our inspection capacity to its limits



Executive Director & Plant Manager Akihiko Miyamoto

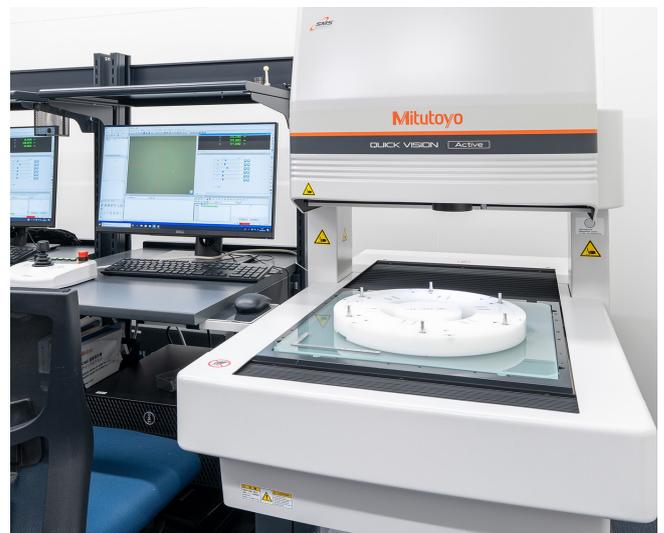
Although PLOTWORK had steadily expanded its material and service offerings from resin to metal machining and from prototyping to mass production, the company gradually came to realize the limits of its inspection capacity. In particular, the measuring machines were occupied more often due to larger quantities of mass-produced products. Therefore, as Miyamoto, the plant manager, recalls, “reducing the time spent waiting for measuring machines to become available and the hours spent manually measuring products became a challenge.”

3 Strategic Approach

Introducing QUICK VISION Active – Mitutoyo’s CNC Vision Measuring System

To resolve this issue, the company introduced QUICK VISION Active, Mitutoyo’s CNC vision measuring system.

The model delivered was equipped with a touch-trigger probe and could perform both contact and non-contact measurements, making it ideal for speedy measurement of products with complex shapes such as those machined by PLOTWORK. With a wide measurement range of up to 400 x 400 x 200 mm, the machine could accommodate product sizes that were difficult to measure with other companies’ vision measuring machines, and the automatic measurement feature helped to reduce personnel and labor required to complete inspection work. These factors were decisive in the company’s decision to introduce the system.

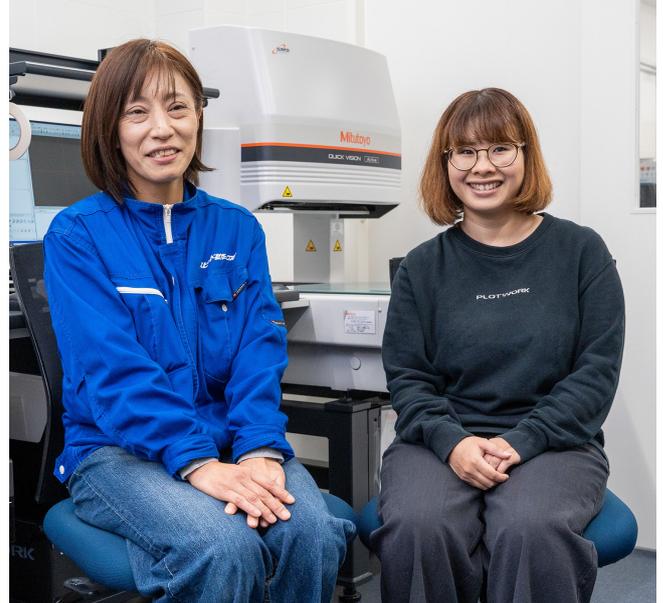


Mitutoyo’s QUICK VISION Active – CNC Vision Measuring System

4 Solution and Results

Automating repetitive inspections of mass-produced products enabled the measurement of more products

PLOTWORK uses QUICK VISION Active's automatic measurement feature to automate repetitive inspections of mass-produced products. Inspection Section personnel Kuninaka and Batai said, "We can easily create a part program because the system automatically records the routine the first time we complete it manually. Inspections that used to take 30 minutes can now be completed in a few minutes through automatic measurement, which has significantly reduced our inspection time." They then make effective use of the time saved through automation to inspect other products or set up part programs. The automatic measurement feature also makes it possible for inspections to be performed by personnel outside of the Inspection Section, or by inspectors with limited experience, reducing the company's dependence on particular employees. The company aims to create part programs for even more products in the future to further improve efficiency.



Inspection Section personnel Atsuko Kuninaka (left) and Naomi Batai (right)

Achieving an efficient and speedy inspection system with vision measuring systems



Using the QUICK VISION Active – CNC Vision Measuring System

The introduction of QUICK VISION Active, which has a wide measurement range and is equipped with a touch probe, has allowed products that were previously evaluated with a Coordinate Measuring Machine to be inspected with a visual measuring system.

"With QUICK VISION Active, not only can we perform non-contact measurements quickly, but we can also use the same system to perform contact measurements with the touch probe. It is efficient because it eliminates the need to switch to a different measuring machine," says Inspection Section personnel Kuninaka. All of the machinists at PLOTWORK are trained to use the system, and they use it to check the finished dimensions and shape of products. Mitutoyo's measuring system plays a key role in PLOTWORK's inspection system, meeting the challenge of manufacturing high-precision, high-difficulty, and short lead-time products.

5 Future Prospects

Continuing to meet the demands of customers in Japan and overseas through relentless dedication and determination

With its advanced technological capabilities and high responsiveness, PLOTWORK has earned the trust of many customers in Japan. The company is looking to expand its business overseas in the future, and is establishing a new plant in the Midwestern United States, a center of the U.S. automotive industry. We believe that PLOTWORK will make even greater strides as it continues to boldly rise to the challenge of meeting customers' high-precision, high-difficulty, and short lead-time requests.



Customer Profile

PLOTWORK

Location: 1-5-26 Minamiterakata Minamidori, Moriguchi-shi, Osaka, Japan
Established: August 1996

Business Content: Resin machining, metal machining, etc.
URL: <https://plotwork-usa.com/>

*The information provided is current as of the time of the interview (September 2023).

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