

Case Study Marking Quality

High-Speed Adaptable Label Scanning

With Inea's label application and scanning system, we were able to meet the high demand for our products, while ensuring that the labelling system is uniform throughout our manufacturing sites, and that no mislabelled products ever reach the end user.



– VP, Quality Assurance

The customer.

A world-leading global coating company for catalytic converters and diesel particulate filters (DPFs). With numerous sites worldwide, they are a major supplier to the automotive industry. To keep the products at the required level of quality, several global standards were introduced, one of them being a standardized marking inspection system.

The challenge.

The customer wanted to ensure 100% reliable data-tracking based on laser-attached data matrix codes (DMCs), the quality of which also needed to be verified. Moreover, the customer had to apply different setups of marks and labels to the products. The positions, dimensions, and quality also required validation against end-user specifications.

Their previously implemented process had the following shortfalls that directly affected the number of customer complaints and the operability of the systems:

- The legacy system operated at an 8-second cycle time, to meet demand a cycle time of 4.5s is required.
- The labelling process was manual. This has caused a number of customer complaints regarding poor application (missing/poor print, wrong placement).
- The labelling process did not have a control system to verify that the label is present, in the correct position/orientation, met the correct quality specification and contained the correct information. As a result, non-conforming parts could reach the customer.

- There was no automated system to confirm the marking was successful. This could have led to unmarked or poorly marked parts reaching the customer.
- The system suffered from poor operability, as there were no local HMI screens to communicate system stops and remedial actions to restore the system to normal running.
- The recent addition of a new production leg has resulted in the requirement for the end of line systems to work at a higher capacity level.

The solution.

We implemented an advanced vision control application in combination with specific part handling for inline inspection of every part at conveyor speeds up to 300mm/s and cycle times as low as 2.5 seconds/part. To reach the required cycle time, the operation also needed to switch the transit modes from continuous to index and back.

The system of inline label applicators, printers, and inSpect cameras performed readings of various kinds of marks (DMC, OCR, or regular barcodes) in various positions on the part. We were able to perfect this process by specifying exactly where on the part the marks could be located, along with their size, orientation, position relative to adjacent marks and contrast with the background.



Since the implementation needed to be done on multiple sites, we streamlined the installation and management process as much as possible, while preserving the system's modularity. With a user-friendly installation interface, we managed to minimize the necessary downtime for installation.

The system can be upgraded in both software and hardware, and is suitable for installation and retrofitting of additional equipment without major mechanical works or relocation.

The results.

