

Case Study Catalytic Honeycomb Inspection

Cell Quality Coating Plugs and Optical Leaks

The standardized vision control system has really proved its value, so we decided to install more than 30 machines on 11 locations and 20 sites. The precision and speed are unmatched.



– Lead Quality Engineer

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, global standards were introduced and a standardized inspection system for all sites and factories was needed.

The challenge.

The biggest challenge for the customer was to ensure 100% quality checks with precise detection of the coating process in the catalysts and any defects that result in optical leaks in DPFs.



They wanted to detect any abnormalities in the catalyst's coating, such as lumps or coating thickness that could result in a low-quality product that would be rejected by their customers, or just managing the process and keeping an eye on the dosing consumption and process efficiency, and avoiding scrap. With DPFs, the optical leaks were a major concern, as any leak could mean that not only the light but also particles could pass the filter and would reach the atmosphere.

Together with the accuracy of the measurements, the speed of each inspection was also a major challenge. To avoid bottlenecking the production line, cycle times needed to be well below three seconds, meaning that the quality checks need to be accurate, precise, and fast.

The solution.

The implemented solution was an advanced vision control application, combined with a specific part handling system for inline inspection of every passing substrate while running the conveyors with speeds up to 450mm/s and with cycle times as low as 2 seconds/part.



The line-scan technology, combined with special illumination methods, was the key to the challenge to ensure fast cycle times, and also proven robustness in rough industrial conditions.

The solution was implemented with a user-friendly interface for the vision software setup, and a SCADA system for complete control of the machine and periphery for simple integration and start-up. This limits the necessary downtime for installation and commissioning while keeping start-up and tear-down times to a minimum.

For site-specific integrations, the system's modular design is a strong point when implementing additional functionalities and equipment. Also keeping in mind the future possibility of technology upgrades, hardware or software, the design is suitable for retrofitting updates and potential upgrades without the need to change the enclosures and time- and money-consuming major mechanical works.

The results.



instant

response time

of detected coating deviation



100%

pass rate

in audits by customers



60%

decrease

in rejected products