

Case Study: Coating Gauge System Upgrade and Disposal of Nuclear Sources



Quad Plus®



Enhancing Safety, Accuracy, and Efficiency in Coating Processes

Objectives

- Enhance safety, improve measurement accuracy, and increase operational efficiency in the coating gauge system

Solutions

- Removal of nuclear, gamma based fixed point sensors
- Supplying a new scanning gauge system
- Installation in a C1D1 classified area
- Implementation of roll gap control

Results/Benefits

- Removal of nuclear, gamma-based radiation sensors, making the work area safer for plant personnel. Additionally, it eliminates the need for continued testing and keeping up with regulations.
- The existing Fixed-point system was only giving three points of data across the web. Upgrading to a scanning system now gives the plant the ability to see cross web coating variation.
- Implementation of Roll gap control ensures that the Coating thickness is always on spec without the need for constant monitoring and adjustments from operations.

Background

The Quad Plus gauging team received an inquiry from a coating company requesting an upgrade for a deteriorating gamma backscatter fixed point gauge system. Their current nuclear sources were reaching the end of their useful life, and they wanted to display a complete cross-web distribution profile. Additionally, their current system did a poor job of controlling roll gap, necessitating constant monitoring from operations.

Quad Plus Solution

The first step was to evaluate the location and design a scanning solution using near infrared (NIR) to measure the cross-web distribution of coating thickness. The coating application employs a solvent-based coating, so the system was designed to operate within and meet all specifications of a C1D1 classified area. We provided one of our standard scanning frame solutions to meet the customers' needs.

The next step involved dealing with the existing nuclear gamma-based sensors. Quad Plus gauging offers the service of removing and disposing of nuclear-based sensors. This is carried out safely and in compliance with all national and state regulations. Quad Plus is trained and authorized to service and remove nuclear-based sensors.

Once the system was installed and providing reliable, fast, and accurate measurement data, we implemented closed-loop control of the customer's roll gap, which is used to control the coating thickness. This was accomplished by evaluating the existing electrical system in place and recommending any necessary changes. The mechanical machine geometry was also assessed, and the control scheme programming was designed to account for it. The implementation of roll gap control provided operations with the reassurance that their product would meet specifications and no longer require constant operator monitoring.

