



Metso Supercharges Its SmartTag™ System With HID RFID Technology

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Metso is a frontrunner in sustainable technologies, offering end-to-end solutions and services for aggregates, minerals processing, metals refining and recycling industries globally. A partner for positive change, its innovative digital and automated solutions and industry-leading service expertise improve its customers' energy and water efficiency. This increases productivity and reduces environmental risks.

Headquartered in Helsinki, Finland, Metso's nearly 17,000 employees in 50 countries generated annual sales of almost €5 billion in 2024 with digital solutions designed to keep customer operations running smoothly and efficiently. Innovative intelligent instruments and software solutions enable customers to extract more value from their processes with fewer resources, leading to increased profitability and more efficient, sustainable production. Metso is listed on the Nasdaq Helsinki.

THE CHALLENGES

In the field of digitalization, Metso's strengths lie in understanding customers' business and data, and utilizing that knowledge to analyze, automate and optimize processes and performance. The company strives to enhance customers' key performance indicators (KPIs) related to equipment and services, while simultaneously minimizing their operational costs and environmental footprint.

One of the tools Metso uses to achieve this goal is mine-to-mill optimization studies to determine how different types of ore are blasted and then processed in the plant in the most efficient way. The findings revealed that, as blasted material passes through handling stages, including stockpiles, the link between blasted and processed materials was lost — a link that could be re-established by tracking ore using RFID technology.

This led to the creation of the Metso SmartTag™ System, which physically tracks ore as it passes through the various stages of processing. Though it was initially developed as a tool, some customers asked to keep it.

“Once this happened, a case for commercializing the system was put to management,” said Michael Wortley, Manager of Ore Tracking Systems for Metso. “At the time our only concern was that a tracking system might be used for mine-to-mill optimization studies by a competitor. But it was decided that the benefits to our customers using the system and promoting Metso outweighed that risk.”

SOLUTION

The RFID tags used initially could not be customized, which Metso quickly realized was an essential requirement for the system to reach its potential and one that the original supplier could not meet. After evaluating various supplier options, HID RFID solutions were identified as the top choice.

Designed to survive blasting, haulage and crushing, the HID RFID tags integrated into the SmartTag System use passive low-frequency RFID technology and feature a globally unique identification number. As such, they have no maximum lifespan and can be stored in stockpiles indefinitely.

The Metso SmartTag System integrates three sizes of HID tags:

- Large — For open pit hard rock mining by placing them in the upper stemming columns
- Medium — Primarily added post-blast, but can also be used in the blast hole upper stemming columns
- Mini — For tertiary crushing and fine screening applications

Handheld readers log tags and add them to the ore, recording the tag ID, as well as the location and time of addition. Fixed detection points detect tags once they are on conveyor belts and pass antenna panels. Then, software transfers record data from handheld and fixed detection points to a central SQL database, where it can be used for KPI and other reports to inform decision-making, optimize operations and reduce costs.

“We originally purchased bare tags from HID. However, after working together for a time, they now supply the final tags, which simplified a complicated supply chain,” said Wortley.

“HID helps future-proof tracking processes by providing the best RFID tags for different applications.”

Michael Wortley
Manager of Ore Tracking Systems for Metso

THE RESULT

Currently, 20-30 permanent Metso SmartTag Systems have been deployed globally. An additional 50 sites have used the system temporarily to conduct mine-to-mill studies.

Since implementing the SmartTag System, featuring HID RFID solutions, Metso has achieved substantial savings in administrative time and costs, thanks to a simplified supply chain. The company's clients are also reaping the benefits.

An underground mining customer in Mexico has reduced the volume of waste sent to the processing plant as ore by 40%. Along with lower costs, the tracking system has had a significant environmental impact, reducing wasted energy by eliminating the need to process waste, which can now be used underground as backfill rather than processed and stored in tailings dams.

Additionally, mine-to-mill studies can increase throughput in a processing plant by anywhere from 3% to 8%. When those studies are enhanced with the RFID tracking system, the results can be even more significant. One Metso customer, was able to achieve — and maintain — for its hardest ore types, a decrease in the amount of energy required to process the ore of 28%. That represents a total environmental impact of metal concentrate production with an energy savings of 25%.

Based on the results to date, Metso is planning to expand the areas where tags can be detected in the mining process. HID RFID solutions will be used to facilitate this expansion.

“The tags HID supplies are a better product, can be sourced in sufficient quantities and are competitively priced,” said Wortley, adding that HID helps future-proof tracking processes, “by providing excellent customer service and the best RFID tags for different applications.”

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