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Key Considerations For Transitioning From Manual to Automated RFID

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As companies become increasingly aware of the liabilities and frustrations inherent in manually affixing RFID labels, commonly called “slap and ship,” they are investigating a transition to automated RFID tagging. RFID “slap and ship” scenarios are generally recognized as an added cost process while automated tagging opens the door to reducing cost and adding value. However, since they are two very different processes, transitioning to automated RFID tagging requires specific considerations.

Label Considerations

The first step is to review the current, non-RFID labeling operation. If an automated, print-apply labeling solution is already in place, the key decision is whether to modify the existing label to include the RFID inlay or leave the existing application and label as is and, instead, add a dedicated RFID-based print-apply system to encode, print and apply a small RFID label where and when needed.

It may be necessary to add a second label for RFID if “real-estate” is a concern since the RFID label will likely be larger than the current, non-RFID label and may not fit the designated area. If the product itself is “RFID-unfriendly,” the RFID label may require a secondary location.

If an automated, print-apply labeling system is not currently being utilized, then the RFID label can be just large enough to contain the RFID inlay and allow room for human readable and/or barcode information as a backup in case the RFID inlay becomes damaged and unreadable. Alternatively, process improvement can be considered where technologies such as ink jet or pre-printed barcodes can be eliminated and the information can be combined into one RFID label.

Bad Tags

With technological advancements, tags have been exponentially improved to a failure rate of less than 1 percent. Many high-speed conversion machines now remove the “bad” tag in a high-speed format that removes and replaces the inlay all in one step. If a tag has passed the final converting process, but fails to be encoded via an open air encoding or thermal printer process, a divert line can separate products to be reworked or tagged.

In an automated encode-print-apply environment there will still be a small percentage of bad tags and/or under-performing tags that cannot be encoded by the printer. Most RFID capable print engines have the capability to identify bad tags.

If the line throughput allows sufficient time for the applicator to remove the bad tag, and the printer to produce a replacement tag before the product to be labeled has passed the labeling window, then it's feasible to allow the applicator to remove bad tags from the process. However, if multiple products pass the labeling window while the applicator is rejecting a bad tag and presenting the next good tag for application, then it likely makes more sense to simply apply the few bad tags that might come up and divert those products downstream for rework.



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Print and Apply Cycle Time

The RFID process adds about 20-25 percent more time to the labeling cycle, resulting in potentially lower throughput than existing non-RFID print-apply operations. The additional time is for the processing and encoding/verification of the RFID tag prior to its application.

Often, time is available and line throughput is not impacted. If additional time is unavailable, consider slowing the throughput, reconfiguring the line or adding multiple RFID printer applicators.

The time required for the RFID encoding/verification process can be offset by other improvements. For example, RFID data collection can be done downstream without the need for dedicated workers scanning barcodes with direct line of sight considerations. Additionally, RFID can result in reduced overall reworks, fewer returns/mis-shipments, more accurate inventory control, more sales due to reduced out of stocks, greater supply chain visibility and earlier payments due to fewer delivery disputes.

RFID Data Integration

The flow of RFID data integration (i.e. to host systems [WMS, ERP, etc], ASN's, other) is the most important part of any implementation. Where the data is captured, how the data is stored and what is parsed or presented back to the host systems will affect the systems data capturing success.

It is imperative to test the data integration. There are many variables to the data capture and parsing process such as item codes, product information, origin, contents, etc. Data is being processed that originates from host systems (e.g. order information), to PLC systems (automated applicators and diverts) to table top printers (item, case and pallet level tagging). This data drives the process and populates ASN files and other data exchange compliance. If the data is incorrect, the system needs to have business rules to validate it prior to triggering the files.

Value Add

With automated RFID, companies not only have the ability to efficiently tag products and collect data, but also the capability to make real time process improvements and supply chain decisions that positively impact the bottom line. While transitioning to automated RFID requires time and resources, the productivity and profitability improvements clearly demonstrate its value.

For More Information Contact:

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