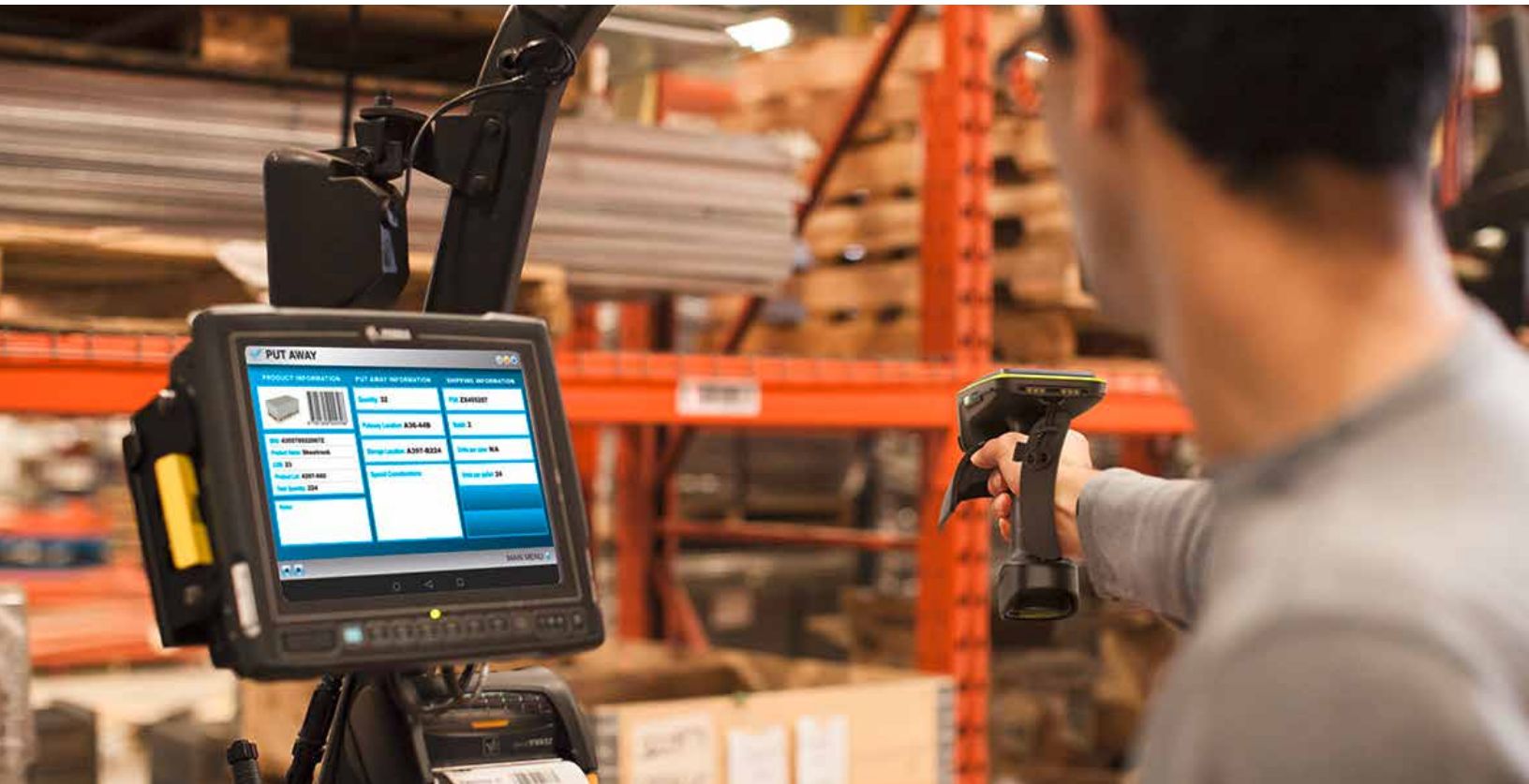
Enabling Manufacturing Visibility, Traceability, and Efficiency

INCLUDING REFERENCE PROJECT

RFID solutions automate data collection, increase accuracy, and reduce waste for today's competitive manufacturers.



Instantly Track Parts, Materials, and Products

RFD90

HOW DOES BLUESTAR ADD VALUE?

BlueStar is Zebra's top distribution partner and provides resellers with:

- Financing Options
- Drop Shipping Direct to End Users
- Custom Configuration Services
- End-User Lead Generation Program
- Dedicated Zebra™ Business Development Team

Radio frequency identification (RFID) technology meets a vital need for manufacturers: traceability.

RFID enables enterprises to track materials from the receiving dock to the warehouse, assembly lines, and quality control inspections. Additionally, it allows these businesses to track assets, such as returnable containers and pallets, as they move back and forth to suppliers, third-party logistics, or other supply chain partners.

Visibility into materials, work in process (WIP), and finished products also saves labor and reduces waste. Employees don't have to spend time searching for inventory or assets. RFID can locate them immediately.

WHY MANUFACTURERS NEED RFID

Several trends are converging that make item-level visibility necessary for manufacturers:

- Customers are placing smaller, more frequent orders, which requires more granular tracking of their status. RFID enables an accurate, real-time view of all materials and inventory, including WIP.
- Many industries are regulated, requiring end-to-end traceability, for example, "farm-to-fork" tracking in the food and beverage industry and medical device tracking in the U.S.[1]
- Competitive pressures require manufacturers to comply with tight schedules while meeting all quality standards and controlling costs.

The older barcode technology that many manufacturers use to manually scan items and enter data simply can't keep up. Legacy systems can damper productivity and cost-effectiveness and open the door to errors, leading to rework and waste.

RFID labels and tags hold more information than barcodes, allowing manufacturers to encode them with lot numbers, shipping information, and other data vital to operations and product tracking. Additionally, RFID tags are read/write devices, so manufacturers can update data during manufacturing, quality control, and shipping processes.

Manufacturers recognize RFID's potential to benefit their businesses and their bottom lines. The RFID market is forecasted to grow from USD 14.5 billion in 2022 to USD 35.6 billion by 2030, an 11.9 percent CAGR.[2]

Those investments will lead to data capture for analysis that enables greater operational efficiency and informed decision-making, leading to enhanced customer satisfaction and a healthier bottom line.

[1] *Source: https://www.fda.gov/medical-devices/postmarket-requirements-devices/medical-device-tracking*

[2] *Source: https://www.marketsandmarkets.com/Market-Reports/rfid-market-446.html*

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Components of an Effective Manufacturing RFID Solution

Technology solutions providers can choose from various options for RFID solution components, enabling you to design systems that meet manufacturers' specific needs.

RFID LABELS AND TAGS

Manufacturers can choose from various RFID tags and labels to track inventory and assets. Labels are available in several sizes, allowing manufacturers to maximize read area on multiple items or assets. Other types of RFID labels and tags are also available for different use cases:

- **Active:** Powered by a battery, enabling them to transmit a signal
- **Passive:** Do not have an internal power source; activated by RFID readers

Additionally, you can choose from RFID labels and tags that work at different frequencies.

- **Low frequency (30 kHz to 300 kHz):** These RFID labels and tags communicate at a distance of about 10 cm (~4 inches) or less. They're a solution for operations that involve metals or liquids that can create interference at other frequencies.
- **High frequency (3 MHz to 30 MHz):** RFID readers can collect data from these labels or tags at close range, typically from 1 cm to 10 cm.
- **Ultra-high frequency (300 MHz to 3 GHz):** RFID readers can collect data from these low-cost tags at distances of up to about 12 meters, making them a good choice for tagging large numbers of parts or products that will be tracked throughout a facility.

RFID PRINTERS AND ENCODERS

RFID printers allow businesses and enterprises to print and encode RFID labels, tags, and cards in-house. Printers and encoders should perform quality checks, including ensuring that tags can receive data and that data is correctly written to the RFID chip.

RFID READERS AND ANTENNAS

RFID readers are available in several form factors:

- **Handheld:** Employees can use handheld RFID readers to scan inventory and encode RFID chips.
- **Fixed:** These devices collect data as products with RFID labels or tags pass by them, for example, at the dock door during receiving or as a forklift transports items to the warehouse.
- **Vehicle-mounted:** RFID readers can also be mounted onto forklifts or other vehicles to collect data and locate storage locations.

RFID antennas provide the ability to track inventory and assets within the range needed in high-traffic environments.

RFID SOFTWARE OR MIDDLEWARE

RFID software formats data collected from RFID chips in labels or tags and shares it with the company's database, enterprise resource planning (ERP), or other management systems. Varying levels of support help you choose what's best for your business. Zebra VisibilityIQ Foresight™ aggregates your big data onto a single, color-coded, cloud-based pane of glass and translates it into actionable insight to streamline workflow. Zebra OneCare™ offers a cloud-based dashboard that provides status views of your device repair and support information, contracts, case lifecycle, and LifeGuard analytics reports.

Where Manufacturers benefit from RFID

RFID has the potential to automate processes and provide traceability throughout manufacturing operations.

BACK ROOM SHIPPING AND RECEIVING

Fixed RFID readers automate data collection at shipping and receiving, eliminating chokepoints. RFID printers can generate and encode new labels that operations can use to track materials and parts throughout production.

WAREHOUSE

RFID readers on forklifts can guide drivers to inventory locations, and handheld RFID readers can quickly take counts and automate data collection during picking or putaway.

OPERATIONS

RFID labels or tags on containers ensure the correct parts are transported to manufacturing lines and track empty containers so they can be returned.

ASSEMBLY LINE

RFID readers throughout the manufacturing facility will capture data on work in process and ensure all stages of production and quality inspection are completed.

IT

Advanced tools enable easy programming and remote management of RFID solutions.

Apparel Company Meets Customer Demand for Inventory Control Capabilities

Kayser-Roth deploys an RFID system to enable data accuracy and quick QC processes

American legwear and intimate apparel company Kayser-Roth Corporation, known for brands such as No nonsense and Burlington, needed to meet the needs of a major U.S. retailer that had implemented a nationwide item-level RFID system for inventory control.

Kayser-Roth looked for an RFID solution that would allow them to tag products for this customer while enabling innovations in the future.

THE SOLUTION

The solution allows the company to print thousands of RFID tags in batches and place them on individual products.

The company implemented Entigral Systems' TraxWare®, a solution for enterprise asset-tracking applications. Kayser-Roth also chose Zebra MC9090-G RFID handhelds for quality control, ensuring the tags are applied correctly and provide the correct data. It is also configurable, so it can support standards in countries worldwide.

Additionally, the system needed to work offline, and TraxWare and the Zebra MC9090-G RFID provided Kayser-Roth with offline capabilities. At the end of a shift, the solution synchronizes data with the corporate server with just the touch of a button.

THE RESULTS

The QC system ensures accurate tagging – and quick QC processes. The Zebra MC9090-G RFID handheld allows employees to read multiple poly bags into a "hot box" and scan all tags at once. TraxWare immediately shows if any tags are unreadable or contain information that isn't in the company's database. The system also supports Electronic Product Code (EPC) standards and can show the complete chain of custody of a SKU.

Kayser-Roth planned to move on to additional phases of the project to enable bulk auditing of all items in their manufacturing facilities and distribution center.

Automotive Manufacturer Slashes Receiving Cycle by 50 Percent

Continental Automotive's RFID solution saves time and provides total visibility into reusable assets

Continental Automotive receives eight truckloads of parts each day, packaged in one or more of Continental's 88,000 reusable containers and pallets. Employees began the massive task of entering thousands of parts from its 160 suppliers into inventory, storing them in the warehouse, and transferring them to assembly lines.

Barcode scanning at receiving was slow, and the manual processes Continental used to locate parts were labor-intensive and prone to errors. As Continental evolved into a lean operation, it needed technology to optimize these processes, including preventing the loss of its containers to save costs.

THE SOLUTION

Continental chose to implement an RFID system with Zebra hendheld and mobile RFID readers to enable data collection from large volumes of parts its operation receives each day. In addition, because RFID doesn't require establishing a line of sight, the enterprise found it to be a more practical solution than scanning barcodes.

Integration with the company's SAP enterprise resource planning (ERP) system was essential. Continental planned to use real-time data collected via RFID to direct the placement of incoming shipments within its warehouses and locate them easily when needed. The solution also included handheld RFID scanners and vehicle-mounted scanners on forklifts.

To enable tracking of its reusable containers, Continental deployed Zebra RFID scanners at its third-party logistics suppliers and container processors, as well as in-house, to track containers with RFID tags.

With the RFID solution, Continental initiates a shipping request from its SAP system. The logistics partner receives the request with a specific container or pallet identifier. The partner scans the RFID tag before shipping and shares that data with Continental. Xterprise software automates the workflow with the incoming shipment, and all data is available to the finance department to match the purchase order, shipping notice, and received goods. The system directs forklift drivers to the designated warehouse locations, and Continental forwards empty containers to logistics partners to be used again.

THE RESULTS

The solution helped Continental achieve its goals of reducing waste and costs. For example, the receiving cycle time has been decreased by 50 percent, saving 20 minutes per incoming shipment. As a result, expenses related to that process fell by 30 percent, and overall, Continental expects an annual return on investment of about 100 percent.

Additionally, data from the receiving process is more accurate, with no manual data entry required, providing greater visibility into inventory. And for the first time, Continental knows where each of its 88,000 containers is at any moment.

Furniture Manufacturer Enhances Traceability

Istikbal Furniture Reduces Rework by 100 percent

Istikbal Mobilya Sanayi Tic.A.S. (Istikbal Furniture) is Turkey's largest furniture manufacturer and exports products to 80 countries around the world. It had been using Zebra MC9090 handhelds to scan barcodes in its mattress manufacturing facility. However, it wanted to upgrade to RFID to enable faster data collection, minimize errors, and provide consumer product traceability.

THE SOLUTION

Istikbal's system leverages 25 Zebra Technologies FX9500 fixed RFID readers at warehouse gates, assembly and sewing lines, quality control areas, and loading bays. With Biztalk, SAP ECC, and Siemens PLC for production control, Istikbal can control more than 40 processes within its operation.

When materials are received at the plant, employees apply RFID tags to track them through the plant. Additionally, a Zebra RFID printer prints UHF RFID labels, which are added to layers of mattresses as they pass through production. Information is collected throughout manufacturing to determine if the product is ready for quality control inspections. Once the product passes QC standards, it's ready for the customer.

Also, because the mattress has an RFID label, if a quality issue occurs, Istikbal has complete traceability data for that product.

THE RESULTS

Istikbal has reduced rework by 100 percent and the QC workload by 50 percent. Additionally, receiving now takes 95 percent less time, and goods dispatch is 40 percent faster. The company also regularly achieves 100 percent accuracy in product shipments.

Manufacturers Need RFID Expertise

Your prospect may have clear goals in mind for deploying RFID technology. However, they may not understand RFID's full capabilities, from scanning multiple tags simultaneously, tracking and locating specific items, automating tasks, and increasing accuracy and efficiency.

Also, educate your customers about the options available, including hardware form factors and price ranges for different types of RFID technology. Additionally, your clients will likely need assistance with a site survey to ensure they'll deploy the right technology and configure their system for optimal performance.

START AT BLUESTAR FOR INFORMATION ON RFID SOLUTIONS FOR MANUFACTURING

If you need support as you evaluate solutions and plan an RFID system deployment, turn to the experts at BlueStar. We provide the most diverse RFID solutions in the industry, including low-frequency, high-frequency, ultra-high-frequency, and active and passive RFID. In addition, our team can help you choose the optimal hardware, software, media, and value-added services for manufacturing use cases and applications for your clients in other vertical markets.

BlueStar also offers its partners support through educational opportunities, events, and one-to-one support, to ensure their projects are successful.

CLOSING THOUGHTS: IT'S TIME

Some manufacturers have been watching for successful RFID use cases for their industry, established standards, and innovations. Now that this proven technology delivers value to a wide range of manufacturers, it's time to put plans into motion.

In fact, manufacturers who continue to sit on the sidelines and watch as RFID enhances productivity, visibility, accuracy, and cost-effective operations may fall behind the competition. Set goals, design solutions, and implement RFID systems now to keep your clients well-positioned in their markets.

LEARN MORE ABOUT RFID SOLUTIONS FROM BLUESTAR

https://www.bluestarinc.com/emea-en/solutions/rfid-solutions.html

https://www.bluestarinc.com/emea-en/manufacturers/manufacturer-microsites/zebra-technologies/featured-products/zebra-rfid.html

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