WAITES CASE STUDY

GLOBAL E-COMMERCE LEADER REDUCES DOWNTIME BY 40%

WITH WAITES' PREDICTIVE MAINTENANCE SOLUTION

WAITES

HOW A PARTNERSHIP WITH WAITES TRANSFORMED MAINTENANCE OPERATIONS ACROSS 13 FULFILLMENT CENTERS FOR A 143% ROI IN LESS THAN A YEAR

BACKGROUND

A global e-commerce leader known for its vast fulfillment network and rapid order processing faced mounting challenges in maintaining uptime, optimizing preventive maintenance (PM), and controlling maintenance costs. Operating one of the world's most sophisticated logistics ecosystems, the company relies on automated sorting systems, miles of conveyors, and robotic picking technology to meet its delivery commitments. With a near 24/7 operational schedule, maintenance teams had limited opportunities to perform critical PM tasks without disrupting operations.

As a result, critical path equipment suffered from increased wear and unplanned failures, leading to:

- Rising maintenance costs due to reactive repairs.
- Increased unscheduled downtime, impacting operations.
- Incomplete or rushed PMs, reducing equipment lifespan.

To address these challenges, the company set clear objectives:

1. Reduce unscheduled downtime and improve equipment reliability across all fulfillment centers.
2. Implement a scalable predictive maintenance system allowing broad coverage with minimal infrastructure changes.
3. Lower maintenance costs by decreasing reliance on reactive repairs and optimizing labor resources.
4. Enhance data-driven decision-making through real-time equipment monitoring and AI-powered insights.

THE SOLUTION

THE SOLUTION: REAL-TIME CONDITION MONITORING WITH WAITES & HUMAN RELIABILITY EXPERTISE

The company deployed Waites' advanced condition monitoring system at multiple facilities. Waites was chosen for its cost-effective, highly scalable, and easy-to-deploy solution,along with its willingness to adapt and innovate to the company's specific needs. Beyond technology, Waites provided a turnkey implementation process, including system design consultation, expert installation services, and continuous guidance from certified vibration analysts, ensuring seamless deployment and long-term optimization.

Waites' compact, wireless sensors with industry-leading density enabled the broadest coverage of motors, gearboxes, conveyors, and bearings—without requiring complex infrastructure modifications. This scalability maximized asset protection and return on investment, providing real-time monitoring across thousands of critical data points.

HOW THE SOLUTION WORKED & WHAT SET IT APART:

Compact, wireless vibration and temperature sensors enabled full coverage of critical path equipment without complex wiring or expensive modifications.

Scalable deployment ensured rapid implementation across thousands of monitoring points with minimal disruption.

Prescriptive alerts: Waites delivered precise, actionable alerts. This minimized guesswork, enabling maintenance teams to get to the root cause quickly -- creating greater efficiencies in the reliability program. This minimized guesswork, enabling maintenance teams to get to the root cause quickly -- creating greater efficiencies in the reliability program.

Human + AI Synergy: Waites' AI-powered diagnostics, combined with expert human analysis, helped establish Waites as a reliable partner for this enterprise customer by ensuring accountability and seamless communication across multiple sites. It also empowered less experienced technicians with expert-level insights, improving the consistency of their maintenance program.

The initial rollout covered 13 fulfillment centers, monitoring a vast range of motors, gearboxes, conveyors, rollers, and bearings, with an immediate plan to expand further based on performance results.

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KEY RESULTS & RETURN ON INVESTMENT

FINANCIAL IMPACT (YEAR 1)

- **$15.2M total savings** in labor and downtime cost avoidance.
- **$4.06M annual labor savings** despite a delayed labor reduction.
- **$11.2M in downtime cost avoidance**, preventing failures before they impact operations.
- **Net Present Value (NPV) of the predictive maintenance program increased** from $25M to $28M, reflecting total financial gains after accounting for initial investment, annual savings, and future cash flow adjustments.
- **Payback period**: 0.7 years (about 8.4 months).
- **ROI**: 143% in the first year.

OPERATIONAL IMPROVEMENTS:

- **40.92% reduction in Lost Production Hours (LPH)** at sites that later implemented Waites.
- **More accurate maintenance planning**, reducing emergency repairs.
- **Improved installation and maintenance feedback loops**, leading to better reliability across all sites.

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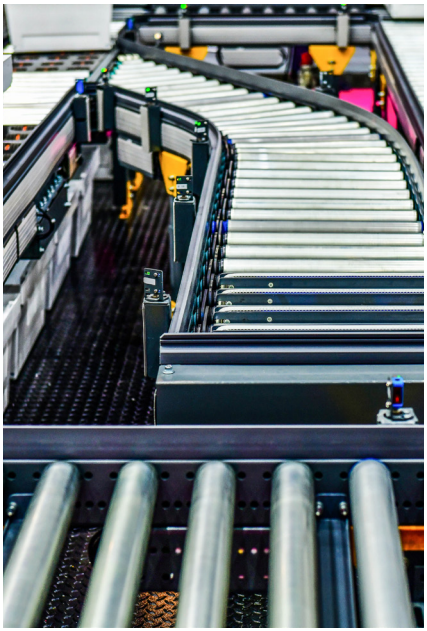


SOLUTION HIGHLIGHTS: PREVENTING FAILURES & REDUCING COSTS

NOTABLE AVOIDED DOWNTIME EVENTS

Shipping Sorter Singulator

- Detected a gearbox oil leak and motor misalignment before failure.
- Avoided 2.5 hours of unplanned downtime, preventing $46,000 in losses.

Main Routing Sorter Conveyor Motor

- The system identified early-stage bearing defects through increased vibration and temperature.
- Proactively replaced under Original Equipment Manufacturer (OEM) warranty, saving $23,000 in replacement costs.

Transnorm Gearbox Failure

- Condition monitoring identified significant vibration changes.
- Maintenance proactively replaced the gearbox, preventing an unexpected breakdown.

Induct Lane Motor Misalignment

- Found loose motor mounting bolts, excessive belt tension, and high bearing temperatures.
- Fixed alignment issues, preventing extensive wear and a costly failure.

LESSONS LEARNED & PROCESS IMPROVEMENTS

As the system deployment continued across fulfillment centers, the company identified best practices that directly benefited operations and improved performance.

Proactive Planning for Efficient Deployments

Collaborative pre-installation meetings streamlined the rollout, minimizing disruptions and ensuring efficient implementation.

Optimized Installation Timing

Waites was eventually brought in during and before the Installation and Operational Qualification (IOQ) process to aid in detecting inefficiencies in the installation process. This proactive approach allowed Waites to red-flag issues early, hold OEMs accountable, and ensure that warranty work was completed before operational launch, leading to more efficient and reliable system integration.

Feedback Loops Strengthened Future Maintenance Strategies

The Waites condition monitoring system provided direct, data-driven feedback to OEMs and installers, improving equipment installation quality and reducing recurring issues in newer sites.

LPH Estimates Were Refined for More Accurate Reporting

The company initially estimated the LPH for each action item, but later adjusted this estimate downward to improve the accuracy of reported savings and provide more reliable insights to inform future decisions.

WHY WAITES? UNMATCHED TECHNOLOGY & PROVEN CUSTOMER IMPACT

Before choosing Waites, the company evaluated six condition monitoring solutions. Waites was selected because of:

1. **Lower total cost of ownership** compared to competitors.
2. **Fully wireless deployment** with no additional infrastructure needed.
3. **Automatic alerts and AI-driven diagnostics,** reducing manual intervention.
4. **Ease of use** and **seamless integration into existing maintenance workflows**.

SCALING PREDICTIVE MAINTENANCE FOR GREATER IMPACT

Following the overwhelming success of the initial 13-site deployment, the company has:

- Expanded the Waites system to over 150 additional facilities.
- Refined predictive maintenance models using AI-driven diagnostics.
- Integrated condition monitoring data into centralized asset management systems, enhancing reliability tracking.

With customer expectations for fast, reliable delivery at an all-time high, unplanned downtime directly impacts service commitments. By leveraging Waites, the company reduced scheduled downtime from 24 hours per week to just 14 hours, enabling greater efficiency while improving reliability.

The result? Higher reliability, lower costs, and a scalable system that supports continuous improvement.

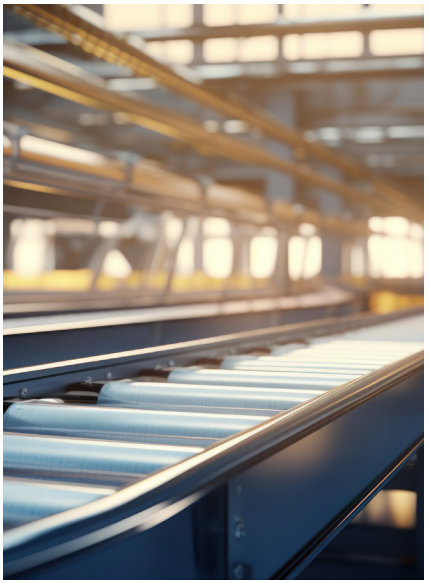
CONCLUSION

Waites condition monitoring system delivered:

- ☑ **Significant cost savings** through avoided downtime and labor efficiency.
- ☑ **Increased uptime and operational reliability** across high-volume sites.
- ☑ **A proven roadmap for scaling predictive maintenance strategies**, ensuring continuous operational excellence.

By integrating cutting-edge sensor technology, AI-powered diagnostics, and expert human collaboration, Waites **enhanced reliability, empowered maintenance teams, and optimized decision-making**—creating a **cohesive, scalable program that drives results**.

As industry leaders seek smarter, more efficient maintenance solutions, Waites remains a trusted partner in delivering cost-effective, scalable, and reliable condition monitoring that drives long-term value.



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