MATERIAL CONTROL SOLUTIONS

Modernizing a Legacy Automated Packaging System to Reduce Downtime and Improve Maintenance Efficiency

Client

The client is a large corn refining operation operating a high-volume automated packaging system originally installed in the early 1990s. Over decades of operation, the facility underwent multiple corporate acquisitions and staff transitions, resulting in fragmented, incomplete, or missing system documentation.

The packaging line is extensive and complex, consisting of:

- 17 fill spouts
- 187 individual conveyors
- 5 palletizers

As the system aged, the lack of accurate documentation increasingly impacted maintenance efficiency, spare-parts management, and overall line uptime.

Objective

The customer's primary objective was to restore clarity, control, and reliability to their automated packaging conveyors through comprehensive system documentation and process improvements. Specific goals included:

- Creating separate job files for each conveyor
- Developing detailed Bills of Material (BOMs) outlining every mechanical component
- Capturing photos and drawings of each conveyor for visual identification
- Building a master BOM spreadsheet covering:
    - *Bearings*
    - *Shafts*
    - *Gearboxes*
    - *Motors*
    - *Pulleys*
    - *Idlers*
    - *Conveyor Belts*

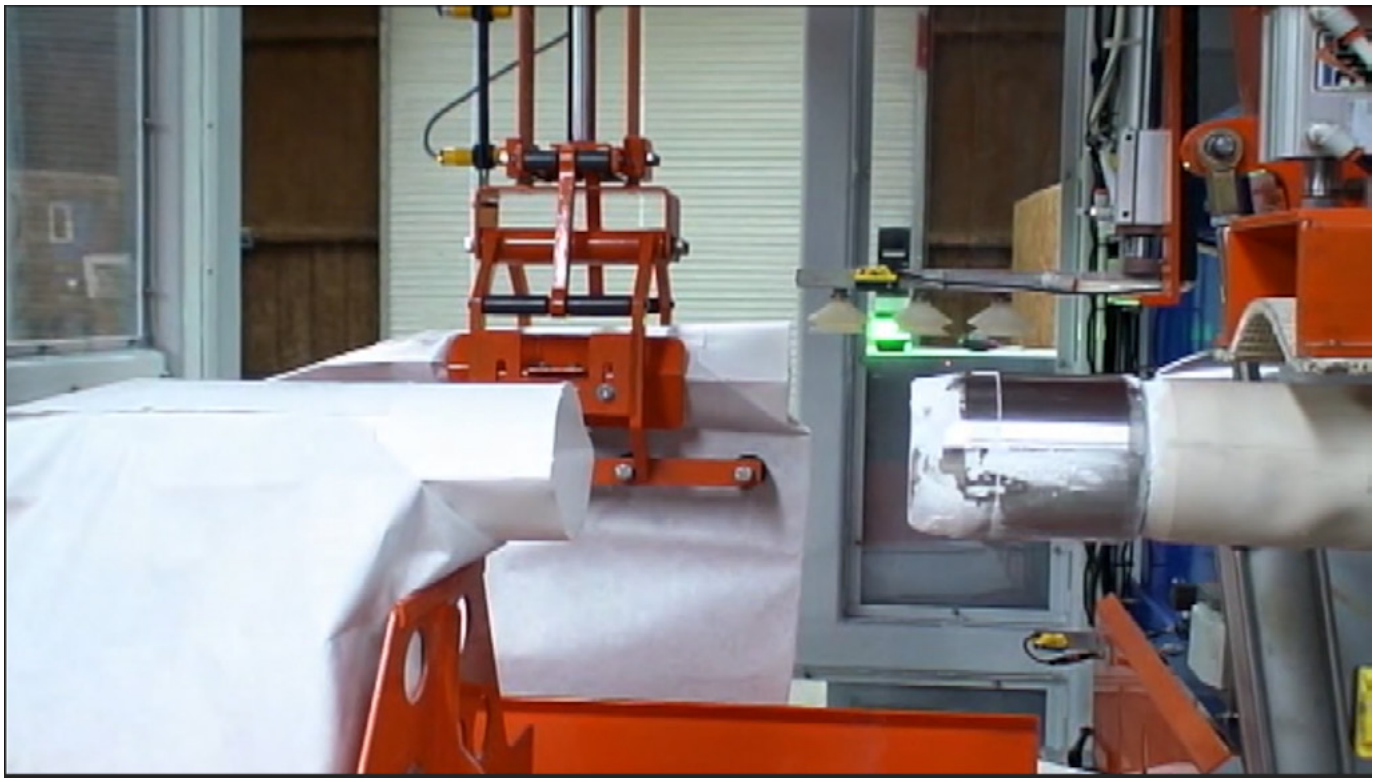
Additionally, the customer wanted to:

- Reduce mean time to repair (MTTR)
- Eliminate maintenance guesswork during breakdowns
- Improve preventive maintenance practices
- Minimize downtime caused by delayed or incorrect part sourcing

Solution

A dedicated, on-site project was executed over four weeks, during which every conveyor and component in the automated packaging system was:

- Validated against actual installed equipment
- Physically inspected for condition and configuration
- Investigated for design differences and historical modifications
- Documented in individual conveyor worksheets
- Collated into master Bills of Material and reference files



Results

As a direct result of the project, the customer achieved measurable reductions in downtime and maintenance labor while dramatically improving response time to equipment failures.

Conveyor belt changeouts dropped from an average of four hours to less than one hour, spare-parts accuracy improved, and preventive maintenance compliance increased.

The packaging system now operates more reliably, with fewer unplanned stoppages and a maintenance team that can act quickly and confidently using accurate, unified documentation.

Summary

This project transformed a 30-year-old automated packaging system from a maintenance liability into a well-documented, maintainable, and reliable operation. By validating every conveyor, creating accurate job files, and centralizing mechanical data, the customer gained full visibility into their equipment for the first time in decades.

The impact was immediate and measurable:

- Reduced downtime
- Faster repairs and lower labor costs
- Improved preventive maintenance compliance
- Extended life of bearings, belts, and rotating assets
- Less maintenance frustration and fewer emergency callouts

Most importantly, small improvements—such as pre-made belts, lubrication discipline, and cleanup accountability—delivered outsized returns. This case study demonstrates that documentation, standardization, and basic maintenance fundamentals are often the most powerful tools for improving the performance of complex automated packaging systems.

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