

POWERTRAIN SOLUTIONS

SOLUTION STORY



Food & Beverage

Optimizing their Powertrain System gives a brewing company a potential savings of **\$48.4** MILLION

FINDING OPPORTUNITIES

One of the world's largest brewing companies experienced high energy, maintenance and service costs due to inefficient processes and MRO. This resulted in hundreds of thousands of dollars in lost maintenance and operating costs.

Most breweries use water and lubrication to ensure cans and bottles do not get damaged during processing. But the use of water and lubrication is costly, inefficient and causes a strain on the environment. At this facility, an estimated 100,000 cases each year are damaged due to wet cans warping the packaging.

Approximately 30% of the electric motors on the facility's can line need replaced every year due to unplanned sporadic failures. Additionally, most of the motors are oversized, resulting in excessive energy usage.

Mechanical power transmission components, like bearings, require manual auditing every few months—which is both costly to perform and an inaccurate method of predicting imminent failures.

All of these inefficiencies result in an annual cost of \$302,793 per year per line in both MRO and operating cost losses. Considering the above, the brewery identified the following key objectives:

- Increase line efficiency
- Standardize inventory
- Improve ease of maintenance by standardizing products and decreasing monthly tasks
- Reduce energy usage
- Minimize water and lubrication usage
- Reduce yearly replacement costs

LOCATION

Brewing Facility in Texas, USA.

CHALLENGE

The brewing facility's existing can line is inefficient and uses excessive water, lubricant and electrical energy—resulting in high operating and maintenance costs.

PROPOSAL

Powertrain Solutions recommended the installation of Leeson® White Duck motors, Hub City® Stainless Steel High Efficiency Right Angle (HERA®) gearboxes, Rexnord® MatTop® PSX® chain (Platinum Series®) and Sealmaster® PN Gold™ Premium Stainless Steel bearings.

RESULT

Optimizing their Powertrain System would result in an overall **savings of \$302,793 per line per year** with a needed investment of \$172,627, helping achieve a **simple payback in under seven months**. When the solution is implemented across the entire North American organization, **the savings grows to \$48.4M**.

REGAL REXNORD™

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SEEING THE BIGGER PICTURE

Powertrain Solutions sent a survey team to perform an audit and inspection of the most problematic can line. That survey collected all necessary information to optimize and redesign both the electrical and mechanical power transmission components. The scope of the work included bearings, motors, gearboxes and conveying chain/components, as well as recommendations for digital monitoring solutions and services.

Following the survey, the Powertrain Solutions team made product and process improvements recommendations. We recommended Rexnord® MatTop® PSX® Run Dry conveyor chain, which reduced the need for lubricant by 97.1% and decreased the need for water by 29%. The PSX chain also has double the life span of the existing chain. Decreasing water and lubrication usage reduced the risk of injury from wet floors in the plant and the potential for warped and damaged packaging. Installing serpentine returns and bi-material rollers eliminated scalloping and uneven wear of chain to maintain flatness and smooth transfers, resulting in at least a 25% reduction in downtime.

Powertrain Solutions recommended downsizing the motors and gearboxes by an average of 38%, reducing the electrical energy consumption and lowering the cost of the components by 25%. The motor and gearbox configuration selected was Leeson®—the industry-leading efficient (>85%) Washdown motor—paired with Stainless Steel HERA® (>90%) gearboxes. Both the motors and gearboxes feature IP55 and IP69 ingress protection, respectively. The products work seamlessly together to maximize life and have the capability to withstand frequent exposure to high-pressure washdown and harsh cleaning chemicals—for reliable, trouble-free operation.

The Powertrain Solutions team selected Sealmaster® PN Gold™ mounted ball bearings, as they do not require frequent relubrication, which leads to a 50% reduction of MRO labor. In the recommendations, Powertrain Solutions also proposed on-site application engineering support for maintenance training and start-up of upgraded lines and maintenance SOP recommendations.

TOTAL ANNUAL SAVINGS

Downtime	Per Line
Product Waste	\$50,000
Lost Cans	\$46,283
Reduced Downtime Events	\$133,920
Total Lost Production Cost Savings	\$230,203

OPEX	Per Line
Lubricant	\$42,628
Water	\$1,369
Energy	\$1,402
Total Operational Cost	\$45,399
Labor	\$2,665
MRO	\$24,526
Total OPEX Cost Savings	\$72,590
Grand Total Savings	\$302,793

Total Investment	Per Line
Survey Cost, Motors, Gearboxes, Bearings, Chain	\$172,627

By optimizing their equipment and processes, the facility will achieve an estimated first year savings of **\$130,166** after an initial investment of \$171,242—for a **simple payback in under seven months**.

ROI RESULTS

Payback Period (Months)	6.8
Investment Gain	\$130,166
Annualized ROI	75%
Invested	\$172,627
Profit	\$130,166



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AN OPTIMIZED OUTCOME

By analyzing and optimizing their entire Powertrain System, the Powertrain Solutions team helped the brewing company increase efficiency, reduce energy cost and improve Total Cost of Ownership (TCO). Additionally, cutting water and lubrication usage reduced the likelihood for slips and falls, improving the overall health and safety of every plant employee.

THE DETAILS MAKE THE DIFFERENCE

To fully optimize the operation, Powertrain Solutions also recommended the following additional solutions and services:

- Digital QR code tagging of each conveyor to identify:
 - Regal Rexnord part number and product information
 - Customer part number
 - Quantity of parts
 - Installation and replacement tracking
- Access to digital databases of all identification, maintenance tracking and ordering information
- Recommended standardization across line types
- Coefficient of Friction testing for critical conveyors (for chain specification analysis)

SAVINGS PER LINE



SAVINGS ACROSS THE ORGANIZATION

Energy Savings: 5,680,800 kW/h

Reducing the motor sizes by an average of 38% across the line will result in a reduction of 5,680,800 kW/hr used per year. That's the equivalent of 4.4M pounds of coal. Smaller motors will also cost 25% less on average.



Water Savings: 68,529,533 Gallons

Upgrading the conveyor chain to Engineered Sustainability products for Run Dry solutions will reduce the amount of water required by the brewery by 68,529,533 gallons annually. That's the equivalent of 2,709 individuals' personal water usage.



Lubricant Savings: 55,906 drums

Run Dry solutions reduce the amount of lubricant used by 55,906 drums per year. This will not only lower costs but lower the strain on the wastewater management system as well.



Replacement and Maintenance Reduction

Premium Sealmaster PN Gold bearings are lubed for life, resulting in reduction of maintenance, replacement time, and cost. PN Gold bearings will last at least five years in a brewery application, compared to the 6-8 months lifespan of a competitor bearing.

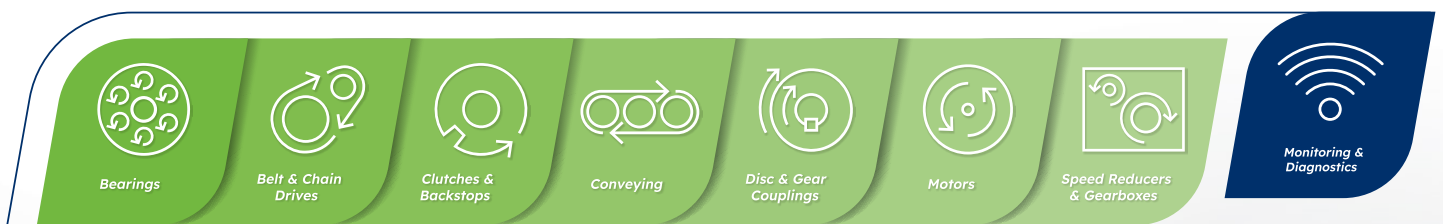


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POWERTRAIN SOLUTIONS

Stop seeing individual parts.
Start seeing unlimited possibilities.

Regardless of your objectives or the challenges with your application, Powertrain Solutions can help you achieve your unique goals. No matter what your application looks like, it relies on many components, all working together. But not all components are made to work together reliably and efficiently. Powertrain Solutions has the insight, experience and expertise to engineer your collection of components into a fully optimized system — giving you solutions that boost efficiency, improve reliability and performance, lower costs and simplify ordering and logistics.



Any challenge.
Any industry.

Powertrain Solutions has the product knowledge and application expertise to build solutions for any industry.

- Mining & Construction
- Metals & Industry
- Food & Beverage
- Power Generation
- Oil & Gas Turbines
- Renewable Energies
- Material Handling
- Warehouse & Distribution

Regal Rexnord

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Get started at [RegalRexnord.com/Powertrain](https://www.RegalRexnord.com/Powertrain)

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