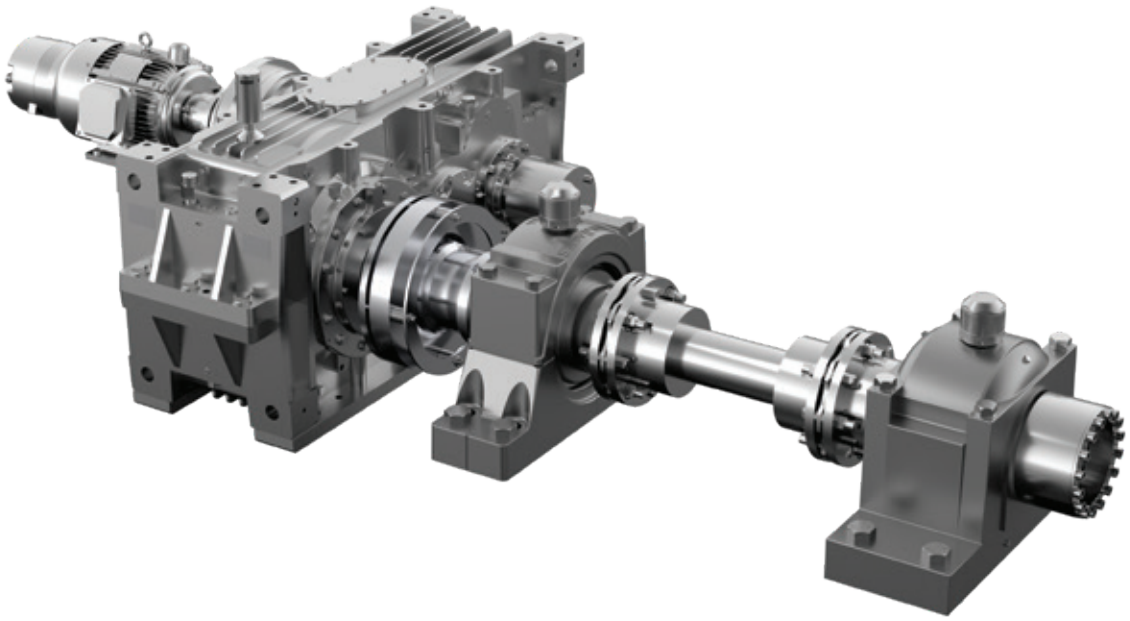
Engineered-to-order Industrial Powertrains

Products, Services and Engineering Come Together in a Complete System to Optimize the Performance, Reliability and Operational Efficiency of Your Unique Application



RegalRexnord™

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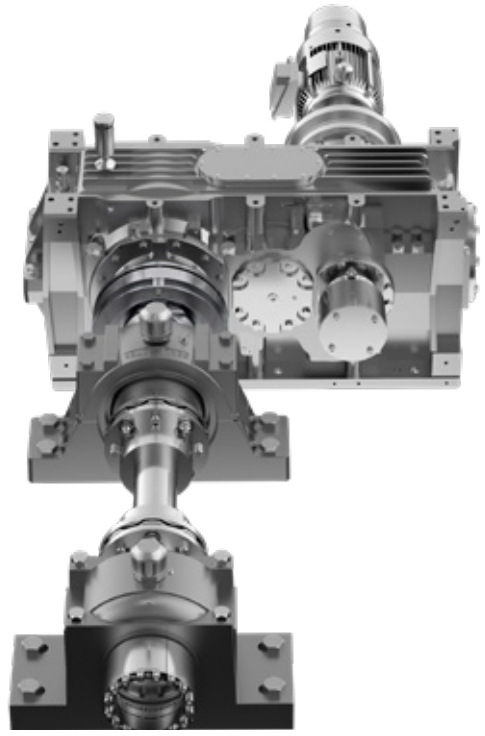
The Situation

Addressing Diverse Applications With Components Not Optimized to Work Together Introduces Cost and Complexity

Across the extensive range of industries — bulk and unit material handling, food and beverage, mining, oil and gas, wood processing, and more — end-user companies operate complex pieces of equipment that require unique powertrains to perform specific functions. As a result, virtually no complete turnkey solutions have been widely available off the shelf.



For many end-user companies, that conventional approach no longer is sufficient. They need new equipment or ways to upgrade existing equipment that enhance performance while reducing energy consumption and other operational costs. To meet long-term business objectives, they must be able to maximize the uptime of their power transmission systems throughout their facilities and processes. The first steps include answering these questions:

1. Where can end-users find original equipment manufacturers (OEMs) capable of providing complete industrial powertrains?
2. Who engineers equipment that is ideally matched for applications ranging from moving light-duty loads of less than 10 inch-pounds of torque to conveying the heaviest-duty loads of millions of inch-pounds of torque?
3. And, how can companies evaluate an OEM?

End-users want to be confident that an OEM will design, assemble, commission and monitor a powertrain system with components that work together, no matter the application. Read this white paper to discover the advantages of a fully integrated industrial powertrain:

- Works efficiently because it is engineered to optimize performance
- Reduces complexities in certification and operation
- Integrates ongoing support, services and diagnostics from one supplier

Do-it-yourself Powertrains: What Can Go Wrong?

Force-fitting diverse components in conventional powertrains often leads to challenges resulting from hazardous conditions, including contaminants, weather or temperatures, or when complying with health and safety regulations. The components can add costs for unplanned downtime when they fail.

Nevertheless, the lack of complete industrial powertrains has compelled engineers and operations managers at end-user companies to cobble together motors, controls and other assorted components sold by a variety of brands from multiple OEMs. Using parts not optimized to work together, companies adapt and force-fit components to keep their equipment running. Well-intentioned suppliers assisting an end-user may simply lack in-depth knowledge of the many mechanical components and electric motors.

The result: powertrains that function — but often with less-than-optimum efficiency, reliability and/or profitability. Examples of the many challenges include:

Powertrain inefficiency

Companies resort to building or repairing powertrains with parts OEM manufacturers have in stock or from the end-user's spare parts inventory. There may be a broad range of options to pick from, but the motors, couplings, bearings and gears have not been designed to work together. Powertrain efficiency is lost as a direct result of mismatched parts. A customer may choose a 3,600-rpm motor and not realize that the gear drive, couplings or bearings in their powertrain are only capable of 2,400 rpm. More energy than needed is consumed when motors are not running at their optimal load or they're driving components that are unnecessarily large.

Failure to meet load requirements

Misalignment of the powertrain can result in not meeting the minimum load requirement. Too much or too little load on the bearings creates edge loading or uneven wear on the gears or bearings and skidding, thus reducing their lifecycle.

Shortened equipment lifecycle

Companies designing their own powertrains often select bearings, gear drives and other components designed for specific environments other than their application. Powertrain components must be properly sealed to tolerate wash-down processes in a food or beverage plant, for example, or extremely dusty conditions in a fertilizer manufacturing facility. Choosing a stock unit instead of equipment designed for these situations can lead to premature product failure.

Complex maintenance procedures

Maintenance becomes complicated by the combination of mismatched equipment. Some bearings can require grease while some gearing can require oil. The approach adds costs and creates opportunities for errors by technicians. A better alternative is to standardize powertrain equipment, which simplifies maintenance practices and makes them consistent throughout the powertrain.

Improper installation

Gear drives can be incorrectly installed when end-users specify a stock unit that's intended to operate horizontally, but is installed vertically without the necessary grease fittings and/or rings for adequate lubrication in a different orientation.

More expensive sourcing

With do-it-yourself powertrains, the bill of material (BOM) inevitably becomes an extensive, complex and expensive sourcing problem.

The Solution

Understanding the Complete Industrial Powertrain: A System Approach to Provide Desired Outcomes for the End-user

To help companies meet the ever-growing expectations for operational efficiency and avoid the high costs of unplanned downtime, leading manufacturers today dedicate teams of application engineers to the pursuit of fully integrated industrial powertrain systems. Instead of continuing to accept the limitations of the conventional, piecemeal approach to powertrain design, forward-thinking manufacturers:

- Focus on creating a major improvement in industrial powertrain performance
- Engineer powertrains to produce significantly reduced ongoing operational costs for energy, maintenance and repairs, while right-sizing the components in the system to minimize upfront capital costs

Realizing these goals requires deep expertise and capabilities to move with confidence away from the industry standard of adapting assorted components from multiple companies and hoping they work together. Instead, more innovative manufacturers propose a vastly better alternative. They recommend a completely new approach that fully meets a company's unique applications and requirements by incorporating off-the-shelf componentry such as:

- Backstops
- Bearings
- Belts
- Brakes
- Chains
- Clutches
- Disc and gear couplings
- Gear drives
- Idlers
- Locking assemblies
- Monitoring and predictive capabilities (internet of things [IoT]-ready)
- Motors
- Rollers
- Shaft guards
- Sprockets
- Torque limiters

From design to sourcing, installation, implementation and monitoring, industrial powertrains can be fine-tuned and tested to ensure their many components fit and function together. The result? End-user companies can realize improvements in powertrain performance and significant total cost of ownership (TCO) improvement.

Industries and Applications

Rely on an OEM with deep, proven experience across industries to design, build, commission and support the end-to-end, optimized electromechanical industrial powertrains that work together to drive any application, including the following:

- Agricultural and off-road machinery and vehicles
- Alternative energy turbines (wind and solar)
- Bulk material handling
- General industry
- Metals and heavy industry
- Mining and construction
- Oil and gas turbines
- Unit material handling
- Warehouse and distribution
- Water and wastewater treatment

Overcome Operational Challenges With a Proven Partner

Force-fitting diverse components in conventional powertrains often leads to challenges from hazardous conditions, including contaminants, weather or temperatures, or when complying with health and safety regulations. The components can add costs for unplanned downtime when they fail.

Avoid these operational challenges by investing in industrial powertrains custom-modified to fit precisely at tight tolerances.

Best Practice: Choose a Single Source

Ask Four Questions to Discover How an OEM Can Help You to Maximize Industrial Powertrain Performance

A leading OEM can provide universally interchangeable powertrain components and IoT-based monitoring. The manufacturer possesses the engineering expertise and a proven record to design, specify, install and implement industrial powertrains in any configuration imaginable to perform the end-user's specific function and provide the desired outcome.

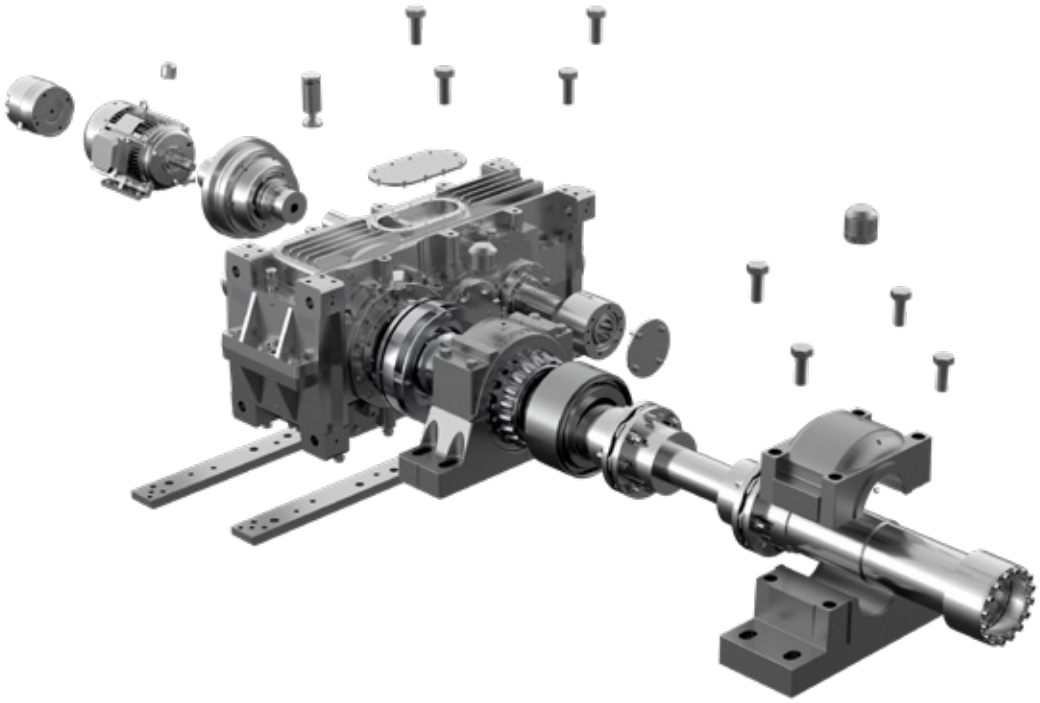
Evaluating whether a manufacturer can deliver an optimized, end-to-end system to match an end-user company's requirements can be a daunting task. To help you identify the right partner, ask the following four questions.

Question 1: How will the manufacturer fully integrate compatible components into an electromechanical system in order to resolve the performance, operational efficiency, reliability and durability issues of improvised powertrains?

Question 2: Does the manufacturer dedicate application engineers who specialize in creating industrial powertrains with components that work in harmony and incorporate IoT-enabled analytics that can be utilized by your company to boost performance, efficiency and energy savings?

Question 3: How will the manufacturer utilize fully interchangeable components to provide flexibility and help ensure that industrial powertrains can be adapted or replaced as needed to meet future requirements?

Question 4: Can the manufacturer provide one point of contact for service, support, repairs and replacement parts, thus enabling your company to avoid the time and frustration of coordinating spare parts and support from multiple sources of myriad powertrain components?



What Does Your Ideal Industrial Powertrain Partner Look Like?

Seek a Single Source for End-to-end Powertrain Design, Build and Support

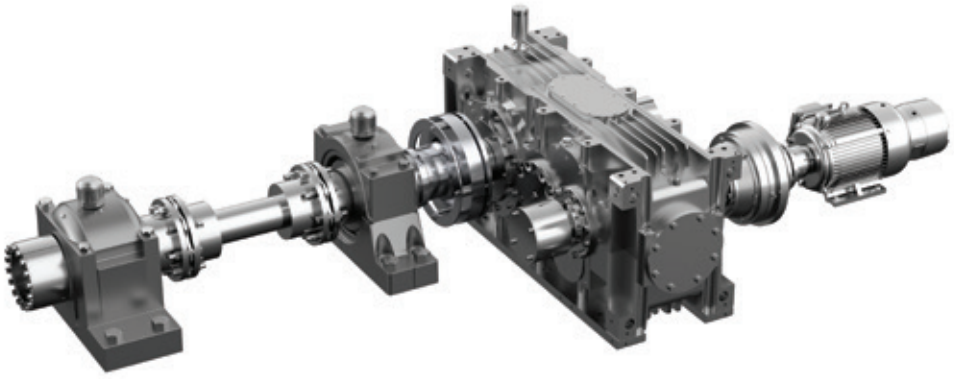
Look for a manufacturer that owns a group of brands which together offer a complete range of industrial powertrain components. You'll benefit because every component in the comprehensive BOM has been specified and engineered by the manufacturer to fit together and easily integrate with any other component.

A key differentiator to consider is whether the manufacturer possesses the expertise to integrate the advanced capabilities of:

- Electric motors and mechanical systems to create end-to-end industrial powertrains
- Remote monitoring to maximize efficiency and performance

Electromechanical operation, particularly with variable-speed drives, enables far more efficient delivery of motor torque to provide precise speed control and significant energy savings. Accomplishing this requires selection of the right components for the application instead of by what was done in the past or by following outdated rules.

Further optimization occurs when industrial powertrains incorporate IoT-enabled sensors for remote monitoring. Companies can remotely monitor performance aspects of components in their industrial powertrain. They receive alerts when equipment performance, reliability or operation falls outside specified ranges; predictive maintenance (PM) analytics also can help companies to better manage spare parts inventory and schedule maintenance in order to avert equipment failures and expensive downtime.



Count on Regal Rexnord to Drive Unlimited Possibilities

Maximize Your Powertrain Performance With the Integrated System Experts

As your partner, Regal Rexnord offers the first complete, engineered-to-order and fully integrated electromechanical industrial powertrains. They are custom designed, engineered, configured, assembled, commissioned and supported from start to finish by experts for virtually any application.

When paired with IoT monitoring of system parameters such as speed, torque and temperature utilizing our Perceptiv™ Connected Services, companies can reduce their overall costs for industrial powertrain maintenance, repairs and spare parts. Simply work with our engineers and operational specialists to define the application and record the power and torque required to take on the load. As your partner, Regal Rexnord takes it from there. We'll ensure the fully customized powertrain works for you.

"The benefits of having one expert provider to design, build and support a fully integrated industrial powertrain are clear. Equipment with right-sized components operates more consistently and reliably and consumes less energy. When paired with IoT monitoring of system parameters such as speed, torque and temperature, end-users are able to reduce their costs for maintenance, repairs and spare parts. When all of the components are engineered to work together as one electromechanical system, users may enjoy financial and performance advantages throughout their complete lifecycle experience."

Chris Carrigan
Vice President of Engineering
Regal Rexnord

About the Company

Regal Rexnord (NYSE: RRX) is a global leader in the engineering and manufacturing of electric motors and controls, power generation products and power transmission components, serving customers throughout the world. We create a better tomorrow by developing and responsibly producing energy-efficient products and systems.

Our company is comprised of four operating segments: Commercial Systems, Industrial Systems, Climate Solutions and Motion Control Solutions. Regal Rexnord is headquartered in Beloit, Wisconsin, and has manufacturing, sales and service facilities worldwide. For more information, visit www.regalrexnord.com.

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