



TIMKEN

- Increased fuel efficiency
- Reduced operating temperatures
- Reduced vibration and noise
- Optimized bearing design envelope
- Enhanced performance

POWERING PERFORMANCE

TIMKEN® FUEL-EFFICIENT BEARINGS

Automotive systems present tough challenges that demand reliability, performance and fuel efficiency. Timken, a global leader in bearing technology, delivers a fuel-efficient bearing that helps to address today's challenges in axle, transmission and drivetrain systems.

Powered by experience, proprietary predictive modeling with SYBER system analysis, advanced engineering skills and expert knowledge of axle, transmission and drivetrain systems, Timken offers fuel-efficient bearings that help enhance reliability and performance while significantly increasing fuel efficiency.

Increased Fuel Efficiency: Our fuel-efficient bearings reduce power consumption up to 30% when compared to conventional bearings. Reducing power consumption can improve fuel efficiency as much as 2%. (Fig. 1).

Reduced Operating Temperatures: Axles utilizing fuel-efficient bearings operate around 25° C (77° F) cooler

than axles utilizing typical bearings, which helps facilitate stable lube performance, resulting in increased bearing and gear life. (Fig. 2).

Reduced Vibration and Noise: Our fuel-efficient bearing design reduces wear due to pinion movement up to 30%, providing more stable gear positions and reducing vibration and noise. (Fig. 3).

Optimized Bearing Design Envelope: We engineer our fuel-efficient bearings to be thinner and smaller while maintaining power density. They weigh 10-15% less than typical bearings. (Fig. 4).

Enhanced Performance: Timken bearing design features promote consistent bearing setting for optimal axle performance.

Pinion Bearing Power Consumption

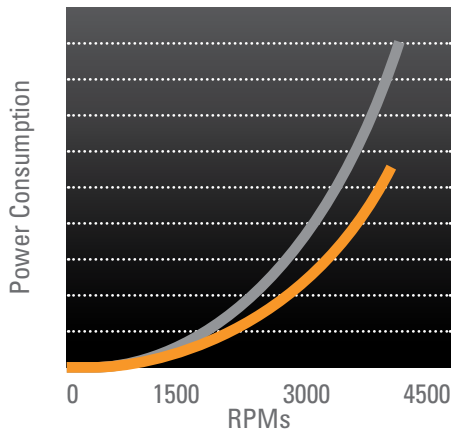
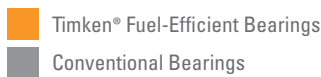


Fig. 1. Up to 30% reduction in power consumption



Axle Temperature

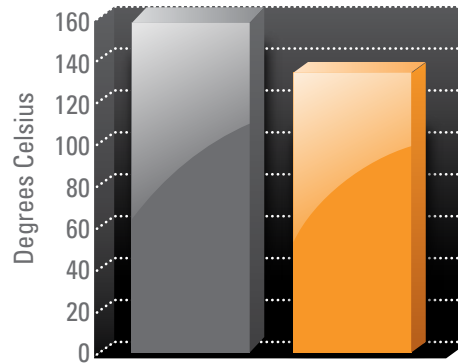
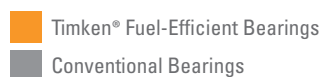


Fig. 2. Up to 30% lower operating temperatures



Wear Due to Pinion Movement

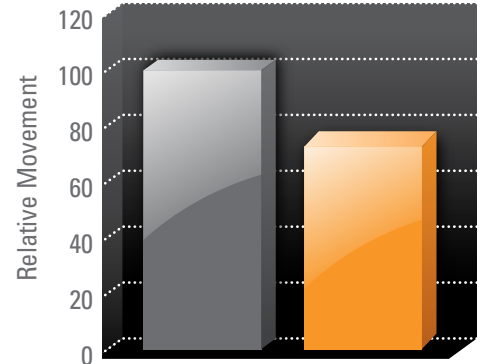
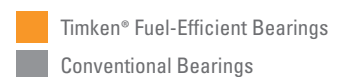


Fig. 3. Up to 30% less wear from reduced vibration and movement



Expertise and Experience

Balancing fuel efficiency and power may seem like an insurmountable challenge. But Timken delivers fuel-efficient, power-dense transmission and driveline designs to help meet your demands. We have influenced drivetrain innovation within the automotive industry since its earliest days, and we continue to work alongside today's market leaders to advance tomorrow's innovations.

Understanding the Entire System

Foundational elements of our problem-solving capabilities include deep industry knowledge backed by our proprietary SYBER analysis tool. SYBER performs complete system analysis, considering all mechanical

and environmental factors when evaluating bearing performance, which allows us to optimize the design using technologies such as enhanced surface finishes and application specific geometries. This helps improve fuel efficiency and can reduce warranty costs on your system.

Execution throughout the Process

Our analytical prowess in the design, testing and process development of drivetrain systems differentiates us from other suppliers. Our combined excellence in engineering and manufacturing allows us to consistently produce more reliable, high-performance products to meet your needs.

Performance Meets Production

Timken® bearings can optimize performance in your most demanding applications and your manufacturing processes. We hold our products to tight specifications and tolerances to help ensure speed and accuracy during the assembly process.

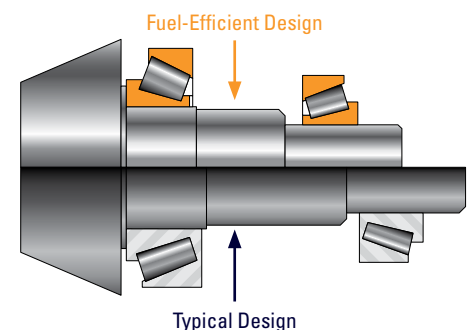


Fig. 4. Ability to utilize smaller bearings allows for reduced system size. Less pinion and housing material provides both cost and weight savings.

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