



ENGINEERED SOLUTIONS FOR PASSENGER RAILROADS

TIMKEN® AND GGB® PRODUCTS AND SERVICES HELP TRAINS RUN SAFELY AND EFFICIENTLY

With a long history of delivering bearings to the rail industry, the company continues to grow its engineering expertise, manufacturing, training and bearing remanufacturing services to meet the expanding demand for this form of transportation.

WE'RE FOCUSED.

Locomotive and rail car manufacturers and operators seek to transport people predictably while using less energy. The company has a team dedicated to designing and delivering solutions to meet those objectives.

Unexpected downtime in the form of hot-box setouts or unplanned maintenance costs money, time, productivity and reputation. Timken bearings, seals and backing rings are made specifically to keep wheels running cooler and keep bearings in service longer.

As countries seek ways to reduce carbon emissions, they are growing more dependent on rail for transporting people and freight. The company's presence in all regions of the world makes it easier for original equipment makers and rail operators to access the products and expertise needed to respond to today's demands.

Timken Advantage

- **Collaborative problem-solving.** Our history and success within the rail industry make the company a trusted resource to manufacturers around the world. Customers rely on us to bring lessons learned to discussions regarding new designs and applications.
- **Product and process advancements.** We evaluate lifecycle costs of products and provide estimates on performance gained through various bearing types. We are helping locomotive and car makers incorporate performance technology into journal designs.
- **Consistency.** Thanks to our stringent quality standards, no matter where in the world Timken rail bearings are manufactured, customers are assured reliable operation.
- **Reliability.** New and remanufactured Timken rail bearings are the go-to choice as replacements. Readily available, our bearings are easy to install and will operate as expected to keep locomotives, passenger cars and freight cars running optimally.

Gain Solutions That:

Promote safety.

Whether transporting people or goods, railroads must confidently move them from point to point. Timken journal bearings are engineered to keep journals running reliably, cooler and longer in service.

Save time and money.

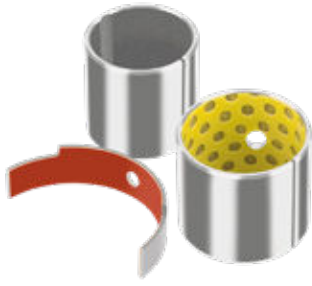
Customers can opt for reconditioned or remanufactured bearings as replacements, saving money over new bearings and deliveries within weeks instead of months. These bearings come with the same guarantee as new bearings.

Help journals operate effectively.

The company has introduced innovative components that help maintain peak performance. The Timken® EcoTurn® seal reduces friction and torque, which affects fuel consumption. The Timken® Sure-Fit® universal backing ring forms an interference fit between the axle dust guard and the backing ring to improve stability.



PRODUCTS DESIGNED FOR THE PASSENGER TRANSIT INDUSTRY

Timken AP™ and AP-2™ Bearings	Timken EcoTurn® Seal	Timken® Tapered, Cylindrical and Ball Bearings for Gearboxes
 • Journal roller bearings • Pre-sealed and lubricated • Accommodate a wide range of speeds and loads	 • Comes standard in AP-2 journal bearings • Essentially-zero-torque design • Can lower annual fuel consumption on a 100-car train by more than 13,500 gallons	 • Timken® tapered, cylindrical and ball bearings are designed to manage high speeds, shock loads and variable lubrication • Enhanced cages and internal geometries deliver performance within a variety of gearbox configurations
GGB® Fiber Reinforced Composites	GGB® Metals and Bi-Metals	GGB® Metal-Polymers
 • Engineered to reduce operational noise pollution and enhance passenger comfort • Delivers low wear performance during slow oscillation and high-frequency, low-displacement angular movement • GGB® FRC Materials are deployed in Anti-roll bars and braking systems • Customizable Center Pivot Wear Plate Liners designed for Bogie Systems	 • GGB® metal and bi-metal bearings and assemblies have long lifespans and resist shock, impact, wear and corrosion • For heavy loads and shock loading conditions, bimetal bearings have anti-corrosion capabilities and are easy to install • Utilized in coupling systems connecting carriages with various load cases in all directions • Ability to withstand high crash-loads	 • Offering superior anti-friction and wear-resistant properties, Metal-Polymer bearings can operate dry or with external lubrication • Suitable for linear, oscillating, and rotating movements • Applications include passenger ramps and doors, pantographs, hinges, and pivot points

TIMKEN

The Timken team applies their know-how to improve the reliability and performance of machinery in diverse markets worldwide. The company designs, makes and markets bearings, gear drives, automated lubrication systems, belts, brakes, clutches, chain, couplings, linear motion products and related industrial motion rebuild and repair services.

Stronger. By Design.

www.timken.com