



## The GGB Advantage



### LOWER SYSTEM COST

GGB® bearings reduce shaft costs by eliminating the need for hardening and machining grease paths. Their compact, one-piece construction provides space and weight savings and simplifies assembly.



### LOW FRICTION, HIGH WEAR RESISTANCE

Low friction is vital for efficient machine efficiency and wear resistance critical for durability and service life. Low friction also minimizes the risk of stick-slip or stiction effects during start up. Railroad and tramway equipment manufacturers rely on our plain bearings and polymer coating solutions for grease free and maintenance operation.



### MAINTENANCE-FREE

GGB bearings are self-lubricating, making them ideal for applications requiring long bearing life without continuous maintenance, as well as operating conditions with inadequate or no lubrication.



### ENVIRONMENTAL

Greaseless, lead-free GGB bearings comply with increasingly stringent environmental regulations such as the EU RoHS directive restricting the use of hazardous substances in electrical and electronic equipment.



### CUSTOMER SUPPORT

GGB's flexible production platform and extensive supply network assure quick turnaround and timely deliveries. In addition we offer local applications engineering and technical support.

## Who We Are

GGB offers a comprehensive selection of products to meet the world's most demanding surface engineering needs. We manufacture metal-polymer, engineered plastics, fiber reinforced composite, metal and bimetal bearings, along with a range of tribological TriboShield® Polymer Coatings.

Our products are used in tens of thousands of critical applications every day on our planet. It is always our goal to provide superior, high-quality solutions for our customers' needs, no matter where those demands take our products. From space vehicles to golf carts and virtually everything in between; we offer the industry's most extensive range of high performance, maintenance-free bearing solutions for a multitude of applications.



### GLOBAL FOOTPRINT

GGB has manufacturing, sales, service and support locations around the globe. This vast network of resources and expertise enables us to respond promptly to your bearing needs wherever you do business.



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GGB is part of The Timken Company's portfolio of engineered bearings and industrial motion products.



## Bearing and Coatings Solutions for Railroads & Tramways

Stronger. Together.





## RAILROAD AND TRAMWAY EQUIPMENT

Railroad and tramway equipment manufacturers rely on our plain bearings and polymer coatings solutions for grease-free and maintenance-free performance, and extended service life under harsh operating and environmental conditions. Our bearings provide superior performance and lower cost of ownership without the need for complex automated greasing systems.

Learn more about GGB railroad bearings:



## GGB PRODUCTS

The following products are particularly well suited in railroad and tramway equipment applications. Contact your local GGB sales representative for a customized surface solution and design assistance.



### GAR-MAX®

GAR-MAX fiber reinforced composite bearing material is known for its high load capacity and excellent shock and misalignment resistance.



### HSG

High Strength GAR-MAX bearings offer twice the static load capacity of standard GAR-MAX, plus very good friction, and wear properties. They also provide excellent resistance to shocks, misalignment, chemicals and contamination.



### GGB MEGALIFE® XT

GGB-MEGALIFE XT thrust washers offer excellent contamination resistance and misalignment resistance.



### TriboShield® & TriboMate® Polymer Coatings Solutions

Our TriboShield formulations cover the full spectrum of mechanical, thermal and chemical capabilities offered by today's coatings materials. Your bearing or coating performance can be enhanced with our TriboMate paired solutions.



✓ Ramps for passenger accessibility  
EP® Series, DP4®

✓ Door opening system bushes  
HSG, GAR-MAX®, MLG, DP4®, EP® Series

✓ Fold down seats hinges  
EP® Series, DP4®

✓ Pantograph bushes  
MLG, EP® Series,  
DP4-B, DU-B

✓ Railway barrier bearings  
EP® Series, DP4®

✓ Various hinges for vehicle interior  
EP® Series, DP4®

✓ Hook guide plates  
HPF, GGB-MEGALIFE®XT

✓ Couplings that connect train cars  
HSG, GAR-MAX®, MLG

✓ Bogie System Components

- Brake linkages  
HSG, GAR-MAX®, MLG
- Anti-roll bar bushes  
GAR-MAX®, GAR-FIL
- Friction damper bushes  
HSG, GAR-MAX®, DP4®
- Horn block axial guide plates  
HPF
- Side bearer liners  
HPF, GGB-MEGALIFE®XT
- King pin bushes  
HPMB®, HSG, GAR-MAX®
- Center pivot liner  
HPF



Learn more about TriboShield® polymer coatings and TriboMate® paired coatings solutions for Railroad applications.



### DP4®

Lead-free metal-polymer bearing material offering low friction and good wear resistance in both dry and lubricated applications. Suitable for linear, oscillating, and rotating movements.



### DX®

DX bearing material offers optimum performance under relatively high loads and low speeds.



### DP4-B

Same advantages as DP4, plus the added benefit of an anti-magnetic bronze backing for improved corrosion resistance in humid/saline environments.



### EP® Engineered Plastics Bearings

Created out of thermoplastic bearing material, our series of EP bearings provide excellent wear resistance and low friction in both dry and lubricated operating conditions. In addition to their high shock-load resistance and noise-dampening properties, our EP bearings provide environmentally friendly, quiet, and grease-free operation.