

GGB-TRANSMISSION
BEARINGS
SHIFTING INTO THE FUTURE

Introduction

GGB is the world's largest manufacturer of high performance polymer bearings for maintenance-free dry, marginally and fully lubricated applications.

GGB's extensive product portfolio includes metal-polymer, high performance engineered plastic and bimetal bearings.

GGB has manufacturing facilities worldwide, and has remained the foremost supplier of self-lubricating bearings to industrial and automotive markets for almost 50 years. GGB's global network of local sales engineers services over seventy countries.



Shift rails, shifting towers



Input/output shaft



Epicyclic gear set washer



Washers for bi-directional loads



Planetary gear set washer



Shifting fork end clips

GGB SERVICE AND SUPPORT

As a world-class supplier, GGB offers a professional service with unrivaled customer technical support via a team of experienced applications engineers including:

- Application analysis
- Production specification
- Bearing dimensions calculation
- Design recommendations

Other special support activities may be considered such as:

- Lifetime estimation
- Test rig evaluation

METAL-POLYMER BEARINGS

The GGB metal-polymer bearings include PTFE and thermoplastic based materials. They share a common structure of a steel backing bonded to porous bronze interlayer that is impregnated and overlaid with a low-friction polymer bearing layer.

DP4®



DP4® offers low friction and high wear resistance under high loads and in boundary lubrication conditions.

DP4® is widely mounted in shifting towers and shifting forks.

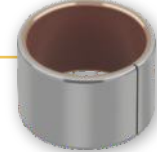
DP31



DP31 provides excellent resistance to flow erosion, cavitation and fatigue under cyclic loads.

Applications include pumps and planetary gear sets.

DTS10®



DTS10® is machinable for reduced tolerances with low friction and excellent resistance to fatigue, oil packages, cavitation and flow erosion.

DTS10® offers good behavior in frequent dry stop-start conditions.

ENGINEERED PLASTIC BEARINGS

GGB's EP® range consists of injection molded thermoplastic compounds with solid lubricants and fillers, including non-abrasive fibers. They offer lightweight solutions with a homogenous bearing structure that can be produced in almost any shape and form.

EP44®



EP®44 offers good load and temperature resistance properties with a good resistance to chemical attack from oils.

EP64®



EP®64 offers superior resistance to load and higher temperatures with increased resistance to chemical attack from oils.

BIMETAL BEARINGS

Bimetal bearings comprising of a steel backing and a bronze overlay without the addition of lead.

AuGlide®



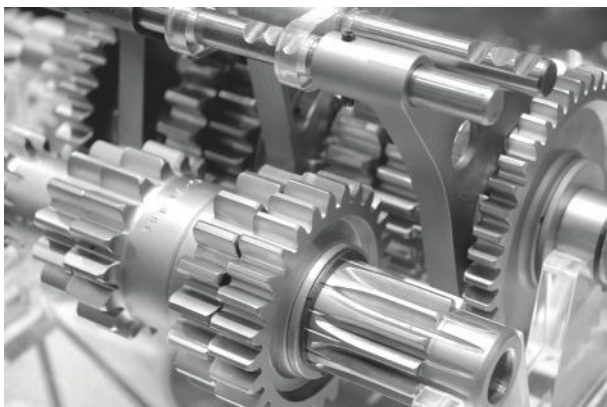
AuGlide® bearings offer a high load capacity and very good fatigue strength characteristics at high temperatures.

Applications

GGB's bushings and washers are widely used in manual transmissions MT, automated manual transmissions AMT, automatic transmissions AT, double-clutch transmissions DCT and continuously variable transmissions CVT and also in transfer cases and transaxes.

Applications include:

- Rear output shaft bearing
- Main shaft bearing
- Reverse idler bearing
- Clutch releases
- Shifting actuators
- Differential gears
- Torque converters
- Sector bushings
- Accessory drives
- Shifting towers
- Shift rails
- Planetary gear sets/carriers
- Solenoids
- Pumps

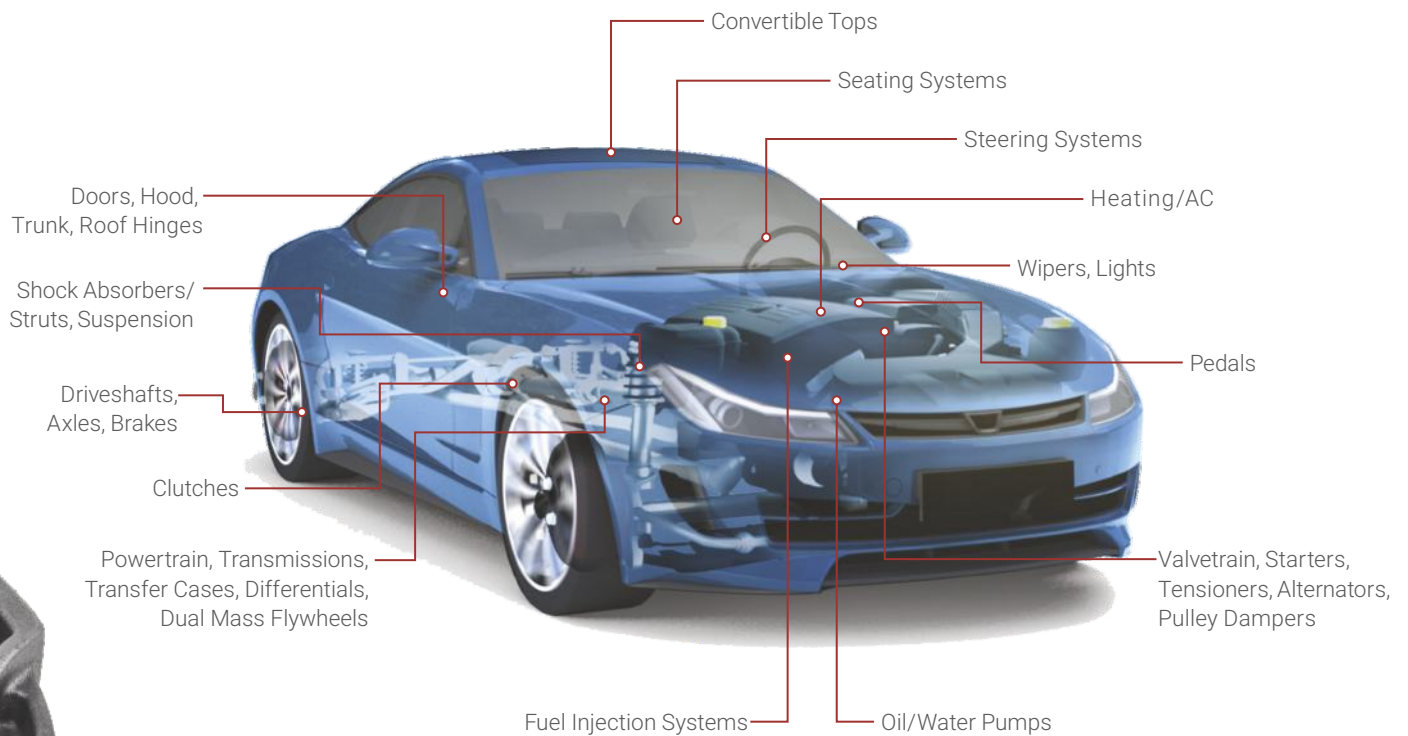


Your complete Bearing Solutions Provider

GGB offers a comprehensive selection of plain bearing solutions to meet the world's most demanding bearing needs. We manufacture Metal-Polymer Bearings, Engineered Plastics Bearings, Fiber Reinforced Composite Bearings, Metal & Bimetal Bearings, in addition to supporting assemblies along with a range of tribological TriboShield® Polymer Coatings.

INDUSTRIES SERVED INCLUDE

- Aerospace
- Agricultural
- Automotive
- Railway
- Industrial
- Primary Metals
- Recreation
- Construction
- Oil & Gas
- Energy
- Fluid Power



The GGB Advantage

GGB's compact and precision-made maintenance-free plain bearings are perfectly suited to operate in boundary and hydrodynamic lubricated conditions.

The advantages of collaborating with GGB include:

IMPROVED EFFICIENCY FOR REDUCED EMISSIONS

- Low coefficient of friction and break away torque, no stick-slip effect
- High precision and dimensionally stable
- High wear-resistant performance under a wide range of load, speed and temperature conditions

WEIGHT REDUCTION FOR LOWER FUEL CONSUMPTION

- Weight reduction from the thin walled bearing structure or light construction
- Reduced power consumption from the low friction bearing surface

REPLACE NEEDLE AND ROLLER BEARINGS

- Composite bearing overlay avoiding metal-to-metal contact and no moving parts to enable reduced noise
- Economic and easy to assemble with no moving parts
- Reduced material usage with the compact bearing design
- Self-lubricating and tolerant to contamination and lubricant starvation for reliable operation

GLOBAL FOOTPRINT

- Manufacturing plants located around the world operating to the highest quality standards and with flexible logistical support
- Local sales and application engineering assistance to reply promptly to your bearing needs
- Rapid turnaround in the design and supply of prototypes and sample

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.

GGB Company History

FOR MORE THAN 115 YEARS, GGB HAS IMPROVED SURFACE ENGINEERING TO MOVE THE WORLD FORWARD.

GGB began in 1899 as Glacier Antifriction Metal Company, producing plain bearings and introducing many successful new products to the market, including internationally recognized polymer materials. Over the past 115 years, our company has continued forming strategic partnerships, continuously expanding into a global network of manufacturing facilities, increasing production capabilities and resources to become who we are today: world leaders in tribological innovation.

Today, our products can be found everywhere—from scientific vessels at the bottom of the ocean to race cars speeding down the tarmac to jumbo jets slicing through the sky to the Curiosity rover exploring the surface of Mars.

Throughout our history, safety, excellence and respect have formed the foundational values for the entire GGB family. They are of paramount importance as we seek to maximize personal possibility, achieve excellence and establish open, creative work environments with the highest safety standards in the industry.

SAFETY

GGB's deep-rooted culture of safety places a relentless focus on creating a secure, healthy work environment for all. A core value of GGB, safety is critical at all levels of business in order to achieve our goal of having the safest employees in the industry.

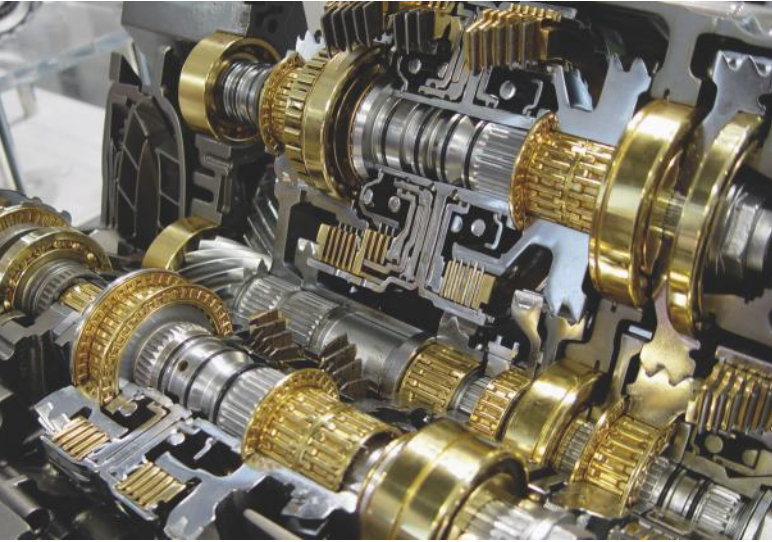
EXCELLENCE

A world-class organization is built by fostering excellence throughout the company, across all roles. Our world-class manufacturing plants are certified in quality and excellence in the industry according to ISO 9001, IATF 16949, ISO 14001 and OHSAS 18001, allowing us to access the industry's best practices while aligning our quality management system with global standards.

RESPECT

We believe that respect is consistent with the growth of individuals and groups. Our teams work together with mutual respect regardless of background, nationality or function, embracing the diversity of people and learning from one another.

PUSHING BOUNDARIES TO CO-CREATE
A HIGHER QUALITY OF LIFE



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