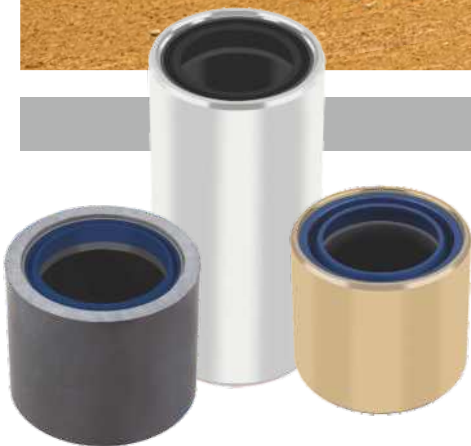


GGB SBC™

Maintenance-Free, Sealed Bearing Cartridge



The Global Leader
in High Performance Bearing Solutions



an EnPro Industries company

GGB Bearing Technology

GGB's history as the global leader in plain bearing technologies dates back more than 115 years, beginning with the founding of Glacier Antifriction Metal Company in 1899. GGB introduced the industry-leading DU® bearing in 1965. Since that time, GGB has continued to create innovative technologies and solutions that improve safety, performance and profitability in a wide range of markets. Today, our products can be found everywhere – from scientific vessels at the bottom of the ocean to racecars

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 critically essential 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 in all positions and functional areas. Our world-class manufacturing plants are certified in quality and excellence in the industry according

to ISO 9001, TS 16949, ISO 14001, ISO 50001 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.

The GGB Advantage

With manufacturing facilities around the world, including cutting edge R&D facilities, flexible production platforms and extensive customer support networks, GGB offers unmatched technical expertise combined with razor sharp responsiveness and customized solutions. Our global presence and local logistics networks ensure our customers receive only the highest quality bearing solutions, in a timely manner and with extensive engineering support. **We don't just make products, we build partnerships. That's the GGB Advantage.**

Quality/Certification

Our world-class manufacturing plants in the United States, Brazil, China, Germany, France and Slovakia are **CERTIFIED IN QUALITY AND EXCELLENCE IN THE INDUSTRY** according to ISO 9001, TS 16949, ISO 14001, ISO 50001 and OHSAS 18001. This allows us to access the industry's best practices while aligning our quality management system with global standards.

For a complete listing of our certifications, please visit our website:

www.ggbearings.com/en/company/certificates

Introduction

This brochure describes GGB Sealed Bearing Cartridges designed to provide a cost effective, environmentally friendly and maintenance-free alternative to conventional greased bronze, hardened steel or rolling element bearings in demand-ing applications typically found in off-highway, construction and earth-moving equipment.

GGB is the world's leading manufacturer of polymer bearings with almost 50 years experience in providing self-lubricated bearing solutions. GGB is also the inventor of DU® and DX®, the global industry standards for metal-backed, polymer plain bearings. In addition, GGB has more than thirty years experience in the manufacture and formulation of class leading, no compromise, self lubricating, maintenance free filament wound plain bearing products, with an established history of successful applications across a wide spectrum of industries

At the heart of GGB Sealed Bearing Cartridges are GGB's GAR-MAX® bearings, the leading filament wound bearing and sold throughout the world, and GGB's HSG™ (High Strength GAR-MAX®) filament wound bearing. GGB Sealed Bearing Cartridges provide a sealed, grease free plain bearing unit to meet the demanding performance and economic requirements of your equipment.

Advantages

GGB Sealed Bearing Cartridges offer the following advantages:

- Maintenance free operation - self lubricating
- Environmental friendly - no grease required
- High load capability - up to 90,000 lbf/in² (620 Mpa)
- Excellent tolerance to shock and edge loading
- Superior wear-rate and bearing life
- Dimensional stability, low water absorption - no swelling
- Excellent corrosion resistance
- Sealed to exclude contaminants from the bearing
- No galling of shaft/pin
- Secure and simple installation
- Elimination of costly and complex automated greasing systems



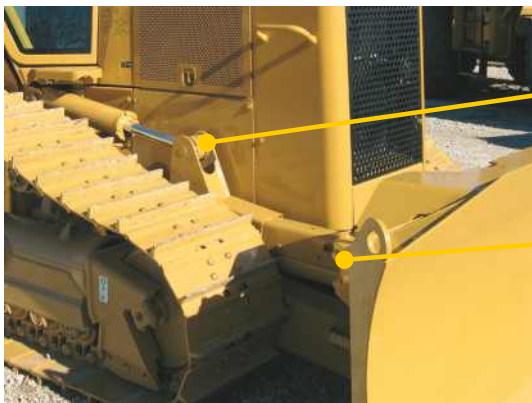
Applications



Dump body pivot

Critical clearance joints

Linkage pins



Lift cylinders

Frame/walking beam trunnion

Suspension or track trunnions

Articulating joints

Steering cylinders



Axle trunnions

King pins

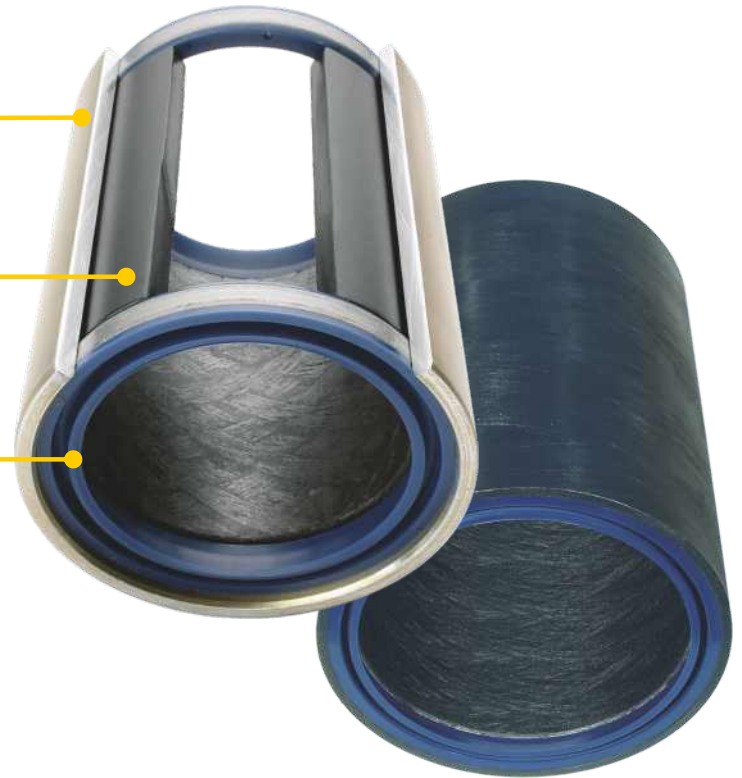


Material Composition

Zinc plated steel
outer shell

High Strength GAR-MAX
self-lubricated bearing
(grease free operation)

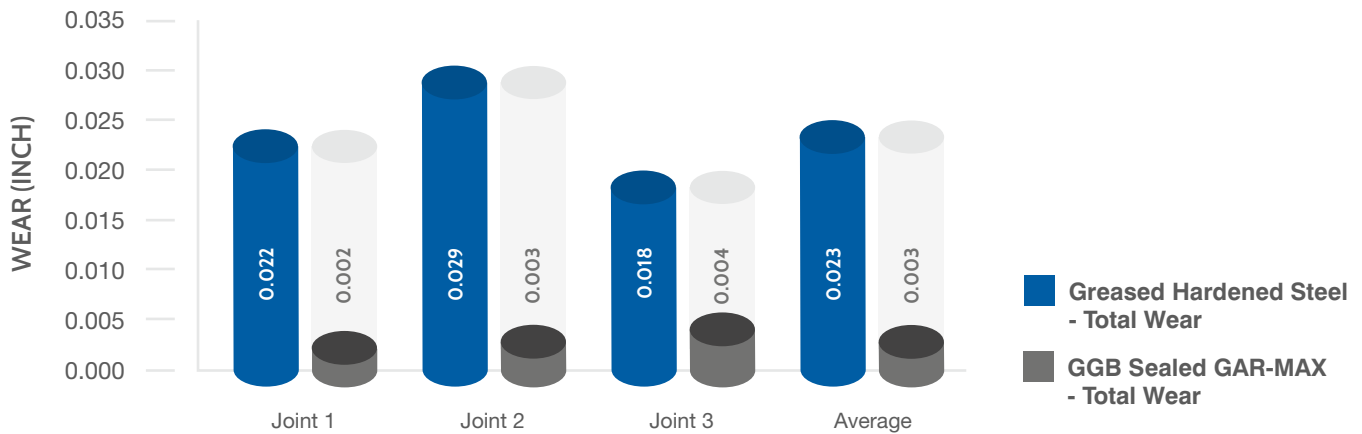
Industry proven
integral lip seal



Specific Wear

Contaminated Testing of GGB Sealed Bearing Cartridge with GAR-MAX vs Hardened Steel

Test conditions: 7500 lbf/in² (51.7 MPa), ± 30°deg Oscillation



Test data: Avanced Manufacturing Institute, Kansas State University

Design Notes

GGB recommends the following for maximum performance:

- Corrosion protection for the shaft/pin
- Shaft/pin surface finish after plating 8-16 min (0.2 - 0.4 mm)
- Shaft/pin surface hardness > 50 Rc

Standard Dimensions

GGB Sealed Bearing Cartridges are available in a range of standard dimensions to accommodate shafts from 1" to 4" (25 mm to 100 mm) diameter and housing bores from 1.75" to 4.875" (41 mm to 122 mm) diameter as follows.

GGB Sealed Bearing Cartridges can also be produced to non standard diameters to meet customers' requirements.

Nominal ID [in]	Nominal OD [in]	Shaft Dia. D _J [in]	Housing Dia. D _H [in]	Nominal ID [mm]	Nominal OD [mm]	Shaft Dia. D _J [mm]	Housing Dia. D _H [mm]
1	1.75	1.0000 0.9995	1.7500 1.7505	25	41	25.000 24.967	41.000 41.025
1.25	2	1.2500 1.2495	2.0000 2.0005	30	46	30.000 29.967	46.000 46.025
1.5	2.25	1.5000 1.4995	2.2500 2.2510	35	51	35.000 34.961	51.000 51.030
1.75	2.5	1.7500 1.7495	2.5000 2.5010	40	56	40.000 39.961	56.000 56.030
2	2.75	2.0000 1.9995	2.7500 2.7510	50	66	50.000 49.961	66.000 66.030
2.25	3	2.2500 2.2495	3.0000 3.0015	55	71	55.000 54.954	71.000 71.030
2.5	3.25	2.5000 2.4990	3.2500 3.2515	60	76	60.000 59.954	76.000 76.030
2.75	3.5	2.7500 2.7490	3.5000 3.5020	70	86	70.000 69.954	86.000 86.035
3	3.75	3.0000 2.9990	3.7500 3.7520	80	96	80.000 79.954	96.000 96.035
3.5	4.375	3.5000 3.4990	4.3750 4.3770	90	112	90.000 89.946	112.000 112.035
4	4.875	4.0000 3.9990	4.8750 4.8770	100	122	100.000 99.946	122.000 122.040

Product Information

GGB gives an assurance that the products described in this document have no manufacturing errors or material deficiencies.

The details set out in this document are registered to assist in assessing the material's suitability for the intended use. They have been developed from our own investigations as well as from generally accessible publications. They do not represent any assurance for the properties themselves.

Unless expressly declared in writing, GGB gives no warranty that the products described are suited to any particular purpose or specific operating circumstances. GGB accepts no liability for any losses, damages or costs however they may arise through direct or indirect use of these products.

GGB's sales and delivery terms and conditions, included as an integral part of quotations, stock and price lists, apply absolutely to all business conducted by GGB. Copies can be made available on request.

Products are subject to continual development. GGB retains the right to make specification amendments or improvements to the technical data without prior announcement.

Edition 2015 (This edition replaces earlier editions which hereby lose their validity).

Statement Regarding Lead Content in GGB Products & EU Directive Compliance

GGB is committed to adhering to all U.S., European and international standards and regulations with regard to lead content. We have established internal processes that monitor any changes to existing standards and regulations, and we work collaboratively with customers and distributors to ensure that all requirements are strictly followed. This includes RoHS and REACH guidelines.

GGB makes it a top priority to operate in an environmentally conscious and safe manner. We follow numerous industry best practices, and are committed to meeting or exceeding a variety of internationally recognized standards for emissions control and workplace safety.

Each of our global locations has management systems in place that adhere to ISO TS 16949, ISO 9001, ISO 14001, ISO 50001 and OHSAS 18001 quality regulations.

All of our certificates can be found here: <http://www.ggbearings.com/en/company/certificates>. A detailed explanation of our commitment to REACH and RoHS directives can be found at www.ggbearings.com/en/company/quality-and-environment.

GGB®, SBC™, GAR-MAX®, HSG™, DU® and DX® are Trademarks of GGB.

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