



With extensive experience and expertise in the hydropower industry, GGB offers a line of high quality performance-proven bearings for a variety of applications, including:

- Servomotors
- Operating ring sliding segments
- Linkages
- Wicket gates
- Guide vanes
- Intake gate sliding segments and rollers
- Spillway gate
- and many more, see:
- Trash gates
- Fish screens
- Trunnions
- Blades
- Injectors
- Deflectors
- Ball and butterfly trunnions
- Hydraulic cylinders

<https://www.ggbearings.com/en/hydropower-gates-turbines-and-valves>

The GGB Advantage



LOW FRICTION, HIGH WEAR RESISTANCE

Low coefficients of friction eliminate the need for lubrication while reducing wear and extending service life.



MAINTENANCE-FREE

Ideal for applications requiring long service life without regular maintenance or operating conditions with little or no lubrication.



LOWER SYSTEM COST

Reduce shaft costs by eliminating the need for hardening and machining grease paths. Compact, one-piece construction provides space and weight savings and simplifies assembly.



ENVIRONMENTAL

Greaseless, lead-free solutions comply with increasingly stringent environmental regulations such as the RoHS directive for electrical and electronic equipment.



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.

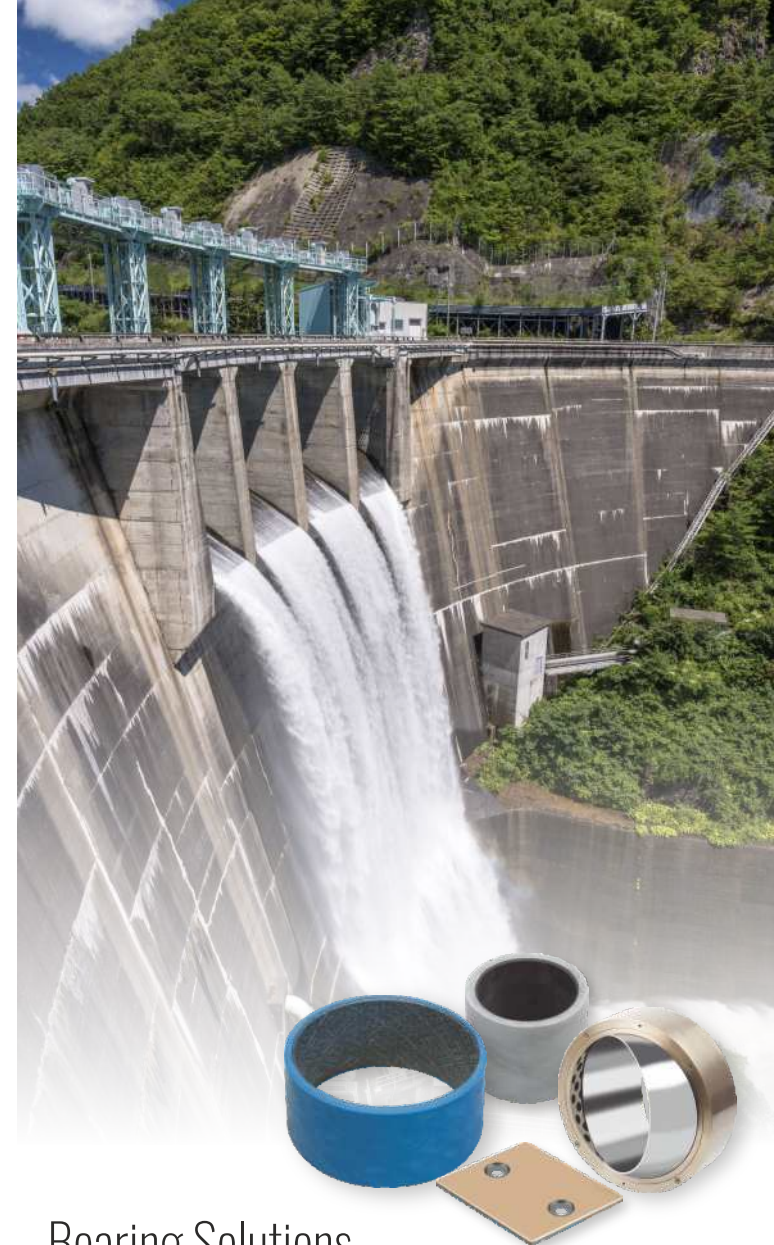


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FL901ENG03-23USA



Bearing Solutions for Hydropower Gates, Turbines and Valves

**CLEAN ENERGY TO
POWER THE FUTURE**



GGB understands the factors hydropower expert engineers face and offer self-lubricating materials that are corrosion resistant, with high wear resistance resulting in extended service life.

HPMB® - Hydropower Machinable Bearings

GGB HPMB® bearings provide superior performance in dry and water-lubricated applications with high loads, tight tolerances and slow rotating or oscillating movements.

They also provide a wide temperature range and low thermal expansion for consistent performance under varying conditions and have been approved for use in water turbines by the US Army of Corps Engineers.

MECHANICAL PROPERTIES

Water absorption (24 hrs)	0.15 %
Max. permissible static specific load $p_{sta, max}$	210 MPa
Max. permissible dynamic specific load $p_{dyn, max}$	140 MPa
Coefficient of friction f , dry/in water	0.03 - 0.12



CHARACTERISTICS

- Machinable inner and outer diameters for superior application precision, circularity and cylindricity tolerances
- Pre-machined high precision HPMB bearings available for immediate installation
- High-precision through easy single point machining of the bearing liner, on-site prior to installation
- Superior precision achieved with post-installation (inner diameter tolerance IT7 attainable) single point machining of the bearing liner
- High load capacity and unrivaled dithering performance
- Excellent shock and edge loading capacity
- Low friction with negligible stick-slip
- Low wear rate for extended bearing life
- Excellent corrosion resistance
- Dimensionally stable – negligible water absorption, low swelling
- Environmentally friendly grease-free operation

For additional market / product offerings, go to [Hydropower Gates Turbines and Valves](#)

OTHER GGB PRODUCTS FOR HYDROPOWER APPLICATIONS

GGB-DB®

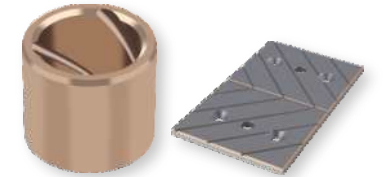
Maintenance-free design provides excellent performance under high loads and intermittent operation in heavy-duty applications.

PTFE inserts are used for low wear and friction. Graphite inserts are available for temperatures exceeding 250°C.



GGB-CBM®, GGB-CSM®

The self-lubricating and maintenance-free GGB-CBM® and GGB-CSM® plain bearing materials were designed for applications with high specific loads, long idle times under static load and low sliding speeds. These features make these materials useful in hydropower applications where a lubricant free material with little to no maintenance is required.



HPM, HPF®

These environmentally friendly composite bearing materials were specifically designed for hydro power applications.

The maintenance-free, self-lubricating bearings require no additional lubrication and have been approved for usage in water turbines by the USA Army Corps of Engineers.

