Leading the Way in Hydropower Bearings

Technical Information

GLACIER GARLOCK BEARINGS

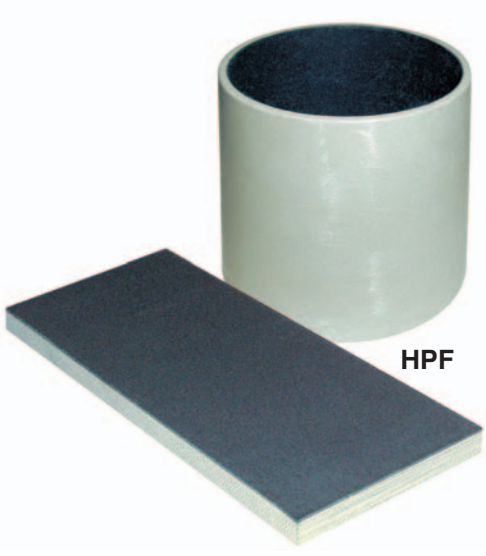
Introduction

Glacier Garlock Bearings is the world's largest manufacturer of polymer plain bearings for low maintenance and maintenance free applications. This includes extensive product portfolio including metal-polymer bearings, thermoplastic materials, fibre-reinforced plastic composite materials and monometallic materials.

GLACIER GARLOCK BEARINGS NORTH AMERICA (GGBNA), is one of six GGB manufacturing facilities world wide, and has remained the foremost supplier of self-lubricating plain bearings to America's industrial and automotive markets for almost 30 years.

In addition to metal polymer plain bearings, GGBNA also has specialist expertise in the manufacture of fibre reinforced polymer composite bearings and materials. With its own filament winding and braiding facilities, together with the technical support and design services of its R&D Department, GGBNA is ideally placed to provide advanced and unique bearing solutions.

New GGB Hydropower products - HPF, HPM



HPF

GGBNA is proud to announce the availability of two recently developed self-lubricating, fiber/resin composite bearing materials, HPF and HPM.

These materials have been specifically designed to meet the demands of a wide range of hydropower applications for high load capacity, low wear rate and friction and a long service life.

Both HPF and HPM combine the excellent self-lubricating properties of PTFE (polytetrafluoroethylene) with the high strength and stability of a carefully orientated glass fibre filled epoxy resin backing.

Typical advantages offered by these materials include:

- Self-lubrication and maintenance free
- High load capabilities
- Excellent shock and edge loading capabilities
- Low coefficient of friction
- Superior wear rate and bearing life compared with conventional bearings
- Dimensional stability - low water absorption, no swelling
- Excellent corrosion resistance
- Environmental friendly
- Secure and easy installation

HPM

HPF self-lubricating materials are available in both flat and cylindrical bearing geometries and consist of a proprietary filled PTFE liner securely bonded to a fibreglass reinforced composite backing. The specially formulated liner has been developed to maximize bearing life without lubrication.

HPM is available as cylindrical bushing and consists of a bearing liner, composed of a PTFE and high strength fibre winding encapsulated in an epoxy resin, that has been further enhanced with self lubricating filler to minimise friction and maximize wear resistance.

Hydropower Applications

Potential applications for **HPF** and **HPM** bearings include:

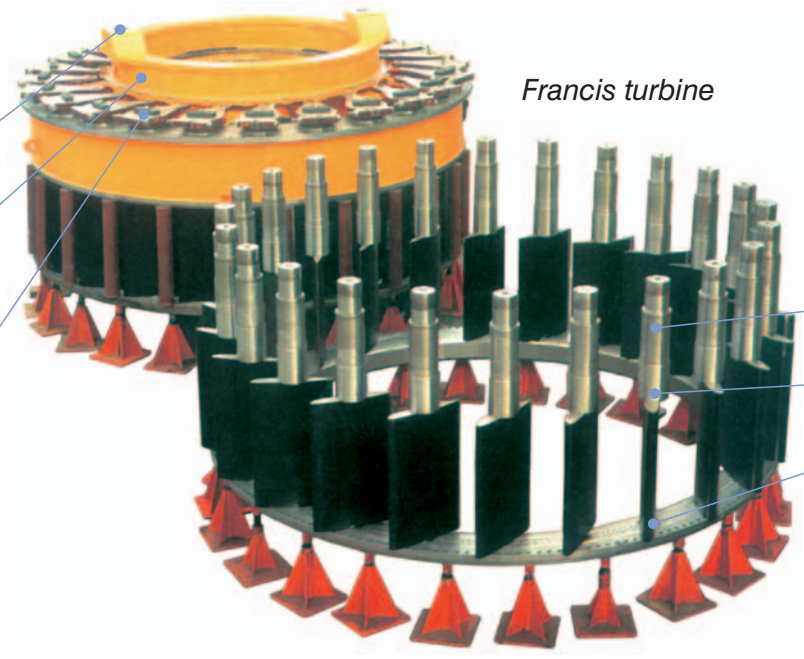
Francis turbines
- servo-motor bearings
- operating ring sliding segments
- linkage bearings
- wicket gate / guide vane bearings

Kaplan turbines
- servo-motor bearings
- linkage bearings
- trunion bearings
- blade bearings

Pelton turbines
- injector bearings
- deflector bearings

Gates
- intake gate sliding segments
- intake gate roller bearings
- spillway gate bearings
- lock gate bearings
- trash rake bearings
- fish screen bearings

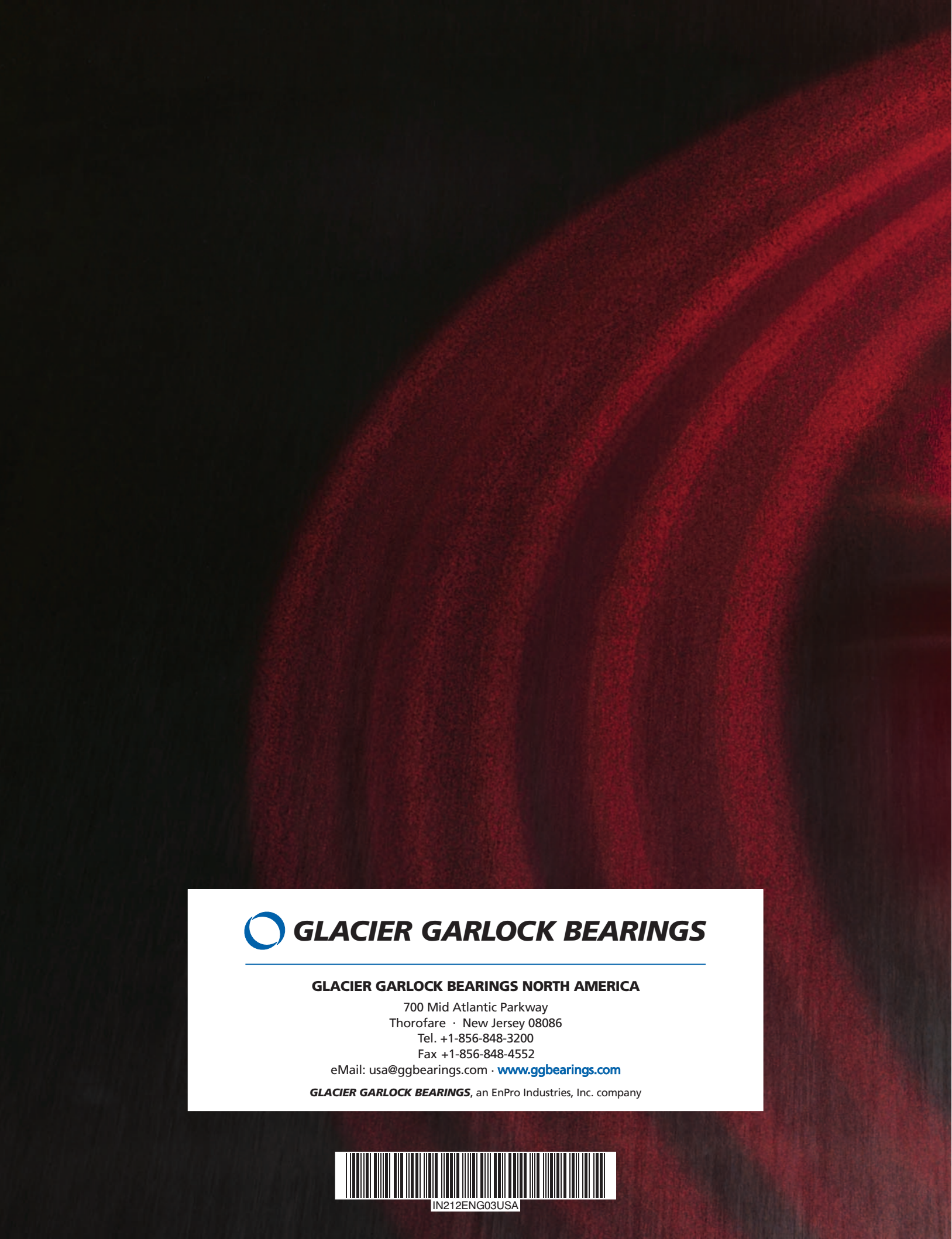
Valves
- ball and butterfly valves trunion bearings



Service and Support

As a world class supplier, GGB offers a professional service with unrivalled customer technical support via a team of Application Engineers including:
- application data analysis
- material specification
- bearing dimensions calculation
- design recommendations and drawings
- technical proposal and quotations
- machining recommendations
- bearing installation assistance

Other special support activities may be considered on request such as:
- references
- life-time estimation
- test rig evaluations
- third party approval
- certification / guarantee



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