Shifting into the Future in Transmission Bearings

Technical Information

GGB

1 Introduction

GGB is the world's largest manufacturer of polymer bearings for maintenance free and marginally lubricated applications.
GGB's extensive product portfolio includes metal polymer and high performance solid polymer bearing materials.

GGB has six manufacturing facilities world wide, 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.

2 Materials

GGB metal-polymer bearings include both PTFE and thermoplastic based materials. They share a common structure of a steel backing to which is bonded a porous bronze interlayer that is impregnated and overlaid with a polymer bearing layer. GGB solid polymer bearing formulations consist of injection-moulded high performance thermoplastic polymer materials with solid lubricant and other fillers.

Metal-Polymer Bearing Materials

Material	Bearing Lining
DP4™	PTFE + CaF_2 + aramid fibre
DP20™	PTFE + thermoplastic polymer
DP30™	PTFE + thermoplastic polymer
DP31™	PTFE + fluoropolymer + fillers
DX™	POM
HI-eX™	PEEK + PTFE + fillers

Solid Polymer Bearing Materials

Material	Compound
EP72™	PAI + PTFE + graphite
EP73™	PAI + PTFE + graphite
MF15™	PEEK + CF + PTFE + graphite

3 Applications

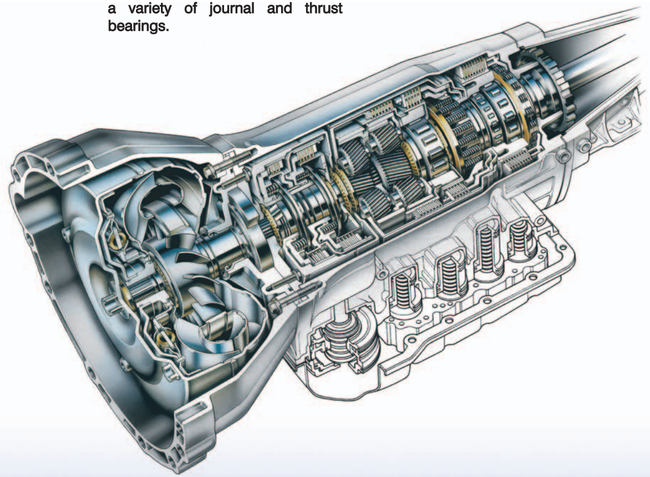
GGB's products are widely used in both manual and automatic transmissions, including continuously variable and infinitely variable types, and in transfer cases and transaxles in applications such as:

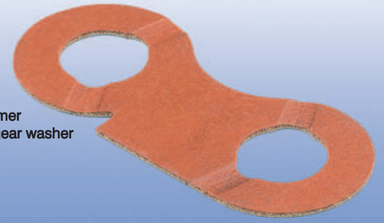
- Rear output shaft bearing
- Main shaft bearing
- Reverse idler bearing
- Planetary gear sets / carriers
- Clutch releases
- Shift fork clips
- Shift rails
- Shifting actuators
- Pumps
- Solenoids
- Differential gears
- Torque converters
- Sector bushings
- Accessory drives

GGB serves these applications with a variety of journal and thrust bearings.

Metal-polymer
reverse idler bearing

Flanged metal-polymer bearing
for applications with combined
thrust and journal loads





Metal-polymer
planetary gear washer

Solid polymer thrust washers
for applications
with bi-directional loading

Metal-polymer
thrust washers for
epicyclic gearbox applications

4 GGB Transmission Products

GGB materials offer the following advantages:

- Self-lubricated, maintenance free and tolerant of lubricant starvation
- Low coefficient of friction, no stick-slip effect, low break away torque
- Superior wear rate and bearing life
- Dimensional stability and corrosion resistance
- High load capabilities
- Quiet operation
- Less weight/space and simplified design and assembly
- Environmental friendly (lead free)

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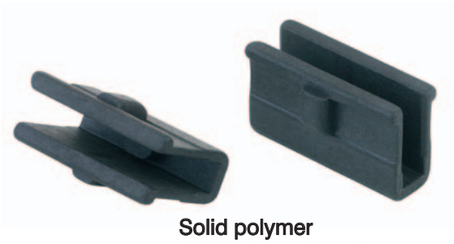
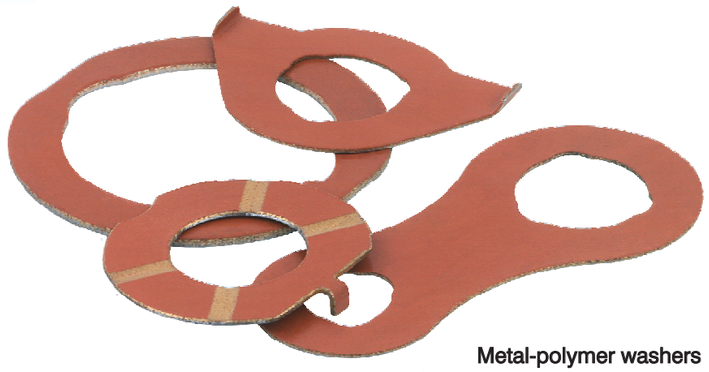
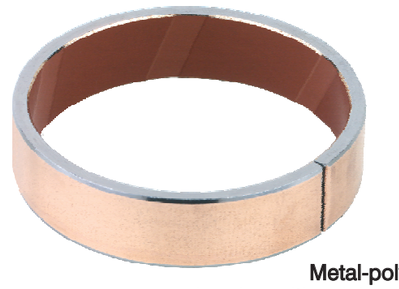


Solid polymer
shift fork bearing clips



Metal-polymer washers
for clutch and gearbox applications



Metal-polymer
bearing with axial grooves
for main shaft applications

5 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 proposals and quotations
- machining recommendations
- bearing installation assistance

Other special support activities maybe considered on request such as:

- life-time estimation
- test rig evaluation
- value analysis