Sub-Assemblies

Technical Information

GGB

This brochure introduces GGB's metal-polymer bearing sub-assembly products and opportunities.

GGB is able to design and manufacture sub-assemblies to customer requirements using only lead free materials and bearings to comply with the European Parliament's End of Life Vehicles directive (ref: 2000/53/EC) on the elimination of hazardous materials in the construction of passenger cars and light trucks.

Introduction

Metal-polymer plain bearing materials were invented by GGB over 50 years ago and have since found widespread use in a range of industrial and automotive applications, where they provide improved friction and wear performance relative to conventional bimetal bearing alloys.
To complement the extensive range of metal-polymer plain bearing products on offer, GGB is also able to combine its long standing engineering and manufacturing experience with its expertise in materials tribology to offer fully optimised bearing solutions to its customers. To this end, GGB has considerable experience in the design and manufacture of sub-assemblies for both automotive and industrial applications.

The Sub-Assembly Concept

The basic concept of the GGB sub-assembly is to supply a plain bearing, typically a metal-polymer bush, together with its housing and possibly other elements of the surrounding component parts as an assembled unit.

GGB sub-assemblies offer customers the following advantages:

Optimised bearing design and performance using GGB's wide experience

Simplified assembly
- reduced costs

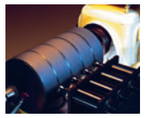
Simplified purchasing

Supplier design responsibility for both bearing and assembly

Reduced development time
- faster to market

GGB provides a complete service to the customer, including technical support and design recommendations, the development of new products to suit particular operating conditions, technical analysis and innovative solutions.

GGB offers the following:

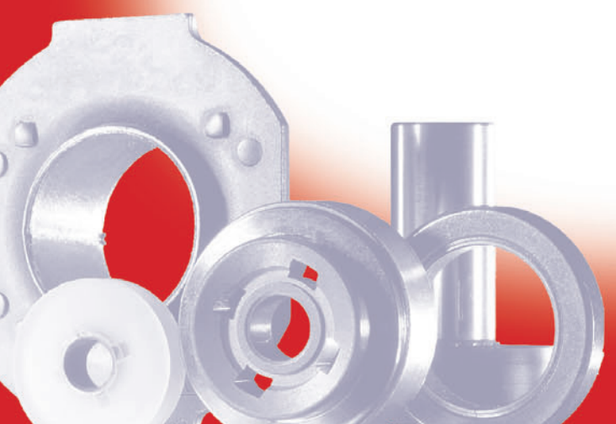


Sub-assembly pre-validation testing in-house at GGB

Calculation of assembly dimensions and tolerance

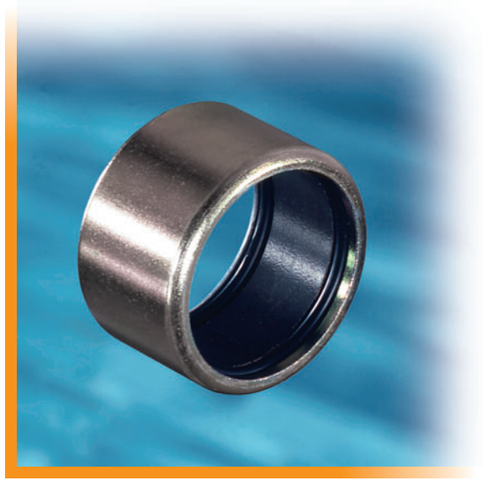
Dimensional control of all parts of the sub-assembly - including burnishing or boring of bush ID

Modern assembly facilities



Metal-Polymer Bearing Materials

Material	Bearing Lining
DU	PTFE + Pb
DP4	PTFE + CaF_2 + aramid fibre
DP20	PTFE + thermoplastic polymer
DP30	PTFE + thermoplastic polymer
DP31	PTFE + fluoropolymer + fillers
DX	POM
DS	POM + PTFE
Hi-eX	PEEK + PTFE + fillers



Standard Plain Bearing inserted in Sleeve

Advantages

- Compact assembly
- Reduced cost compared to rolling element bearings (up to 50% less)
- Suitable for rotational or axial movements
- Low maintenance
- Self lubricating

Applications

- Cost effective alternative to rolling element bearing depending on the operating conditions

Yoke for Steering Systems

Design Options

- Low friction metal-polymer bearing lining DU, DP4, DX . . .
- Body made from plastic, aluminium, sintered steel . . .
- Sealing can be incorporated as required

Advantages

- High performance with low friction and long wear life
- Optimised design with large number of material options
- Design support from GGB

Rollers

Design

- GGB metal-polymer flanged bush
  + plastic housing
  + steel or aluminium shaft

Advantages

- Cost effective high performance
- Roller design optimised to the application
- Corrosion resistant assembly option
- Sealing can be incorporated as required

Applications

- Any light/medium duty roller application

Pulleys

Design

- GGB metal-polymer bush
  + plastic housing
  + steel or aluminium shaft

Advantages

- Cost effective high performance
- Design optimised to the application
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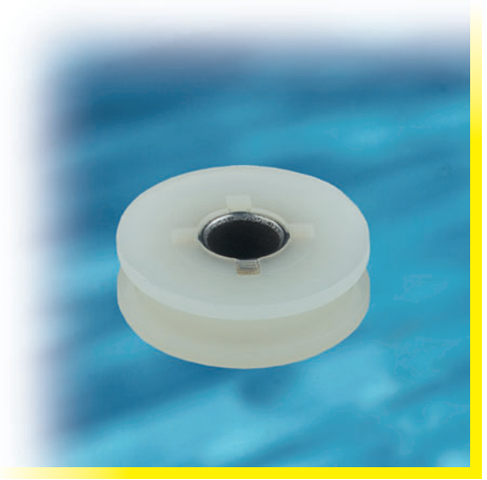
Applications

- Any light/medium duty pulley/cable system application,

  e.g. automotive: wipers, doors . . .

  industrial: lifts, doors . . .



Special Parts

Advantages

- Housing geometry adapted to the component
- Design adapted to customer's specifications
- Possible to include additional functions/requirements,

  e.g. controlled friction, damping, electric or magnetic insulation

Applications

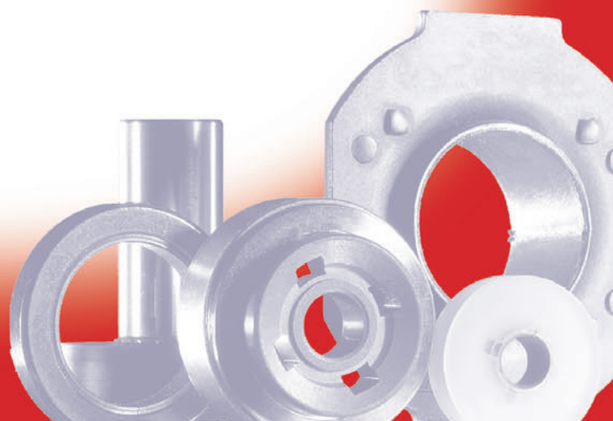
- Automotive components: e.g. struts, clutches, steering systems, brakes . . .

  industrial: e.g. lifts, shutters . . .

Clutch release bearing
- deep drawn housing

Clutch fork bearing - plastic housing

Metal-polymer bush
assembled in strut piston
rod guide housing, reversed
wrapped bushes for strut piston applications are also possible



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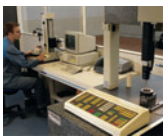
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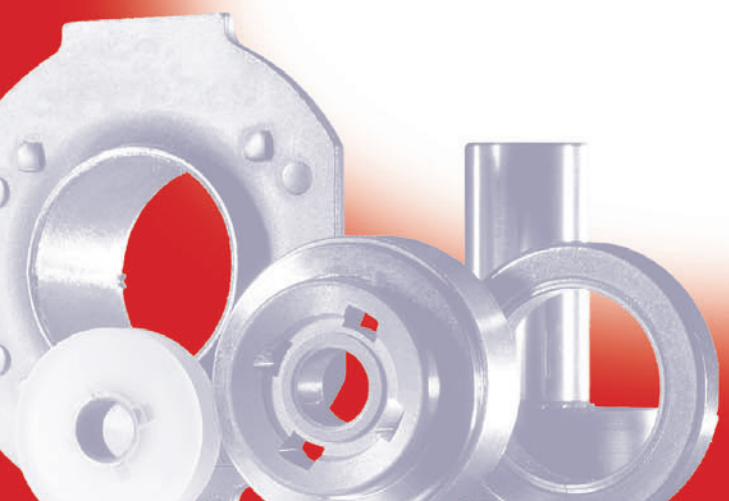

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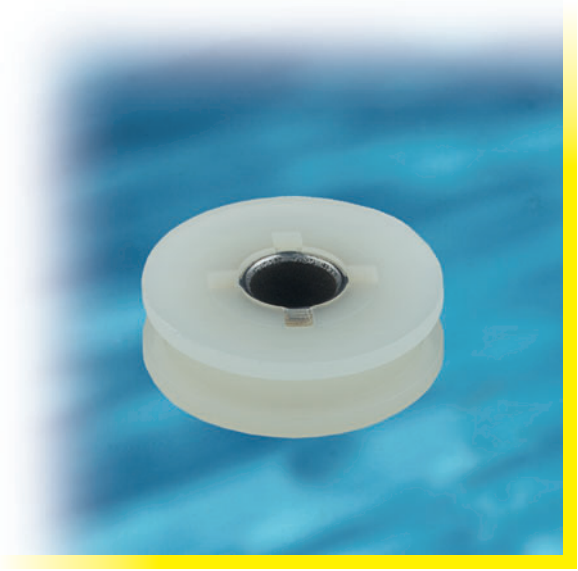

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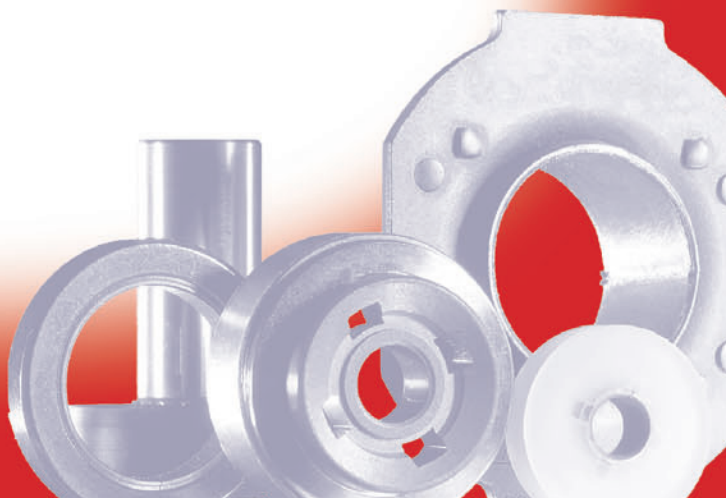

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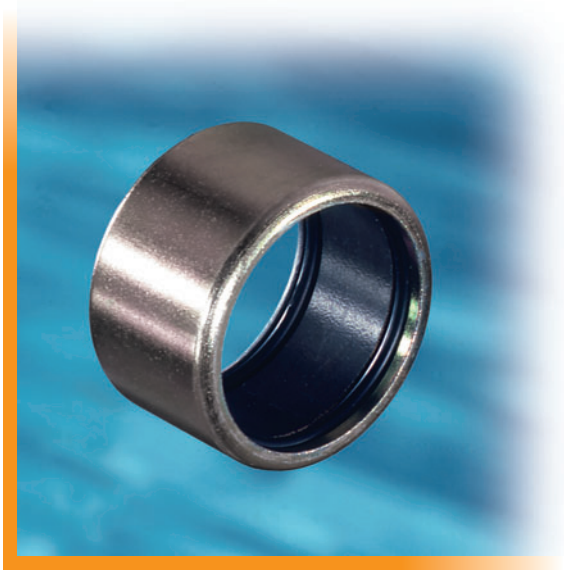

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