

HPMB®

HIGH PRECISION FIBER REINFORCED COMPOSITE BEARING



APPLICATIONS

Industrial – Railroad stabilization system, railroad brake linkages, injection molding machines – guide bushings, hydraulic cylinder pivots, water turbines – wicket gates, servomotors, links, water gates, valves

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
- Excellent shock and edge loading capacity
- Low friction with negligible stick-slip
- Low wear rate for extended bearing life
- Excellent corrosion resistance
- Dimensionally stable - very low water absorption, low swelling
- Environmentally friendly grease-free operation
- Tested by Powertech Test to evaluate performance of self-lubricated bushings in wicket gate applications
- Tested acc. to ASTM E595/ECSS-Q-ST-70-02C - Outgassing properties of materials used in Spacecraft equipment

AVAILABILITY

Bearing forms made to order: finished cylindrical bushings, pre-machined cylindrical bushings, flanged cylindrical bushings (subject to design review)



| BEARING PROPERTIES | | UNITS | VALUE |
|--------------------|--|-------|-------|
|--------------------|--|-------|-------|

GENERAL

| | | | |
|---|-----------------------|---------------------|-------|
| Maximum load, p | Static | N/mm ² | 210 |
| | Dynamic | N/mm ² | 140 |
| Operating temperature | Min | °C | - 196 |
| | Max | °C | 163 |
| Coefficient of linear thermal expansion | Normal to the Surface | 10 ⁻⁶ /K | 12.6 |

DRY

| | | | |
|----------------------------|--|-------------------------|--------------|
| Maximum sliding speed, U | | m/s | 0.13 |
| Maximum pU factor | | N/mm ² x m/s | 1.23 |
| Coefficient of friction, f | | | 0.03 - 0.12* |

RECOMMENDATIONS

| | | | |
|-----------------------------|-------------------------|----|-----------|
| Shaft surface roughness, Ra | | µm | 0.2 - 0.8 |
| Shaft surface hardness | Normal | HB | > 180 |
| | For longer service life | HB | > 480 |

* Depending on operating conditions

OPERATING PERFORMANCE

| | |
|--------------------------|----------------------------|
| Dry | Very Good |
| Oil lubricated | Fair |
| Grease lubricated | Not Recommended |
| Water lubricated | Very Good |
| Process fluid lubricated | To be tested by final user |

FOR SUPERIOR PERFORMANCE

| | |
|--------------------------|----------------|
| Oil lubricated | GAR-FIL / HPF |
| Grease lubricated | DX / DX10 |
| Process fluid lubricated | GAR- FIL / HPF |

MICROSECTION



For additional product offerings visit:
<https://www.ggbearings.com/en/our-products/fiber-reinforced-composite-bearings/hpmb>