

## 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
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**GENERAL**

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

**DRY**

Maximum sliding speed, U		m/s	0.13
Maximum pU factor		N/mm <sup>2</sup> 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**

