

IFR Series

Product Description

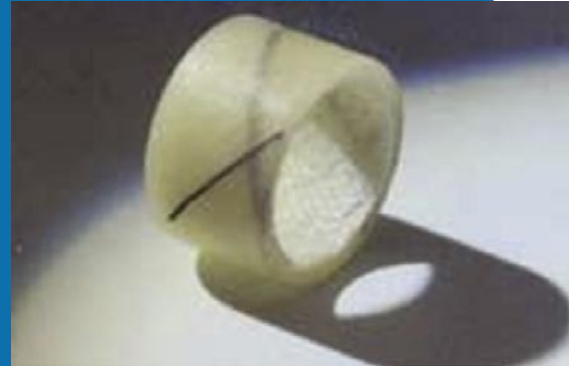
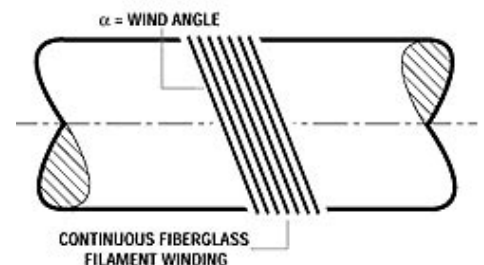
The Fiber-Lube™ IFR bearing offers the same inherent anti-friction components that allow it to achieve the low wear characteristics of the FW and MRP series bearings. However, in comparison to these two products, the IFR bearing (for Improved Fatigue Resistance) offers a proprietary laminate structure of the bearing backing that increases the bearing's resistance to repeated stress/strain conditions.

Several years ago, Our manufacturer was approached with a seemingly straightforward application for traditional filament wound composite bushings. At issue was an application that was resulting in bearing failure after just 10,000 oscillatory cycles. The pressure on the bearing was well under the design threshold (actual applied pressure to the bearing was 10,000 PSI). In response to this customer's demand, they developed an improved impact fatigue bearing that in the case of the above application increased the life of the bearing by over 50% and now Daemar can offer this product to you.

Because composite filament wound bearings are not isotropic materials as are metals, the Company's FEA laminate analysis focused on what was believed to be the limiting factor: optimization of system's inter laminar shear. The Fiber-Lube™ IFR bearing offers a more than twofold increase in the impact fatigue over traditional composite bearing materials.

Product Schematic

Traditional filament wound composite bearings will tend to show fatigue failure in the form of resin shear failure in the traverse direction to the reinforcing fibers. The logical solution to this problem was to try to crosstie the reinforcing fibers together with other reinforcing fibers so as to minimize the shear stresses in the resin.



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Product Advantages

The Fiber-Lube™ IFR bearing is the first bearing with such an optimized resin system and fiber/laminate architecture.

A low friction, self-lubricating composite bearing with significantly improved fatigue resistance against repeated stress/strain conditions.

Product Comparison

<u>Mechanical Properties</u>	<u>Fiber-Lube™ or MRP Series Bearing</u>	<u>Fiber-Lube™ IFR Bearing</u>
Ex(axial), Msi	1.3	1.6
Ex(hoop), Msi	3.2	2.4
Gxy, Msi	1.0	1.0
Tx(tensile), Ksi	5.5	11.9
Tx Ksi	64.5	48.7
Cx(compression), Ksi	18.8	20
V-xy(Poisson's Ratio)	.314	.312
V-yx	.762	.435

Mechanical & Physical Properties

The Fiber-Lube™ IFR bearing can withstand static loads of approximately 60,000 PSI and 30,000 PSI under dynamic loading. At these loading levels, minimum distortion will occur. For dry running applications, the maximum speed is approximately 10 surface feet per minute.

This bearing's operating temperature range is ±325°F. Maximum continuous operational surface temperature for the standard formulation is 325°F, depending upon load characteristics. The bearing has been heat stabilized at these temperatures, so that little dimensional change will occur in the bearing during operation.

In a free state, the coefficient of expansion of the Fiber-Lube™ IFR bearing is approximately 7×10^{-6} in/in/°F, similar to the coefficient of expansion for steel, and actually less than some metals.



Fiber-Lube™ IFR Bearing Applications

Excellent applications for IFR bushings include bearing systems using alloyed bronze, spring-retained, hardened bushings and hardened steel bearings.

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