

PM High Birefringence Gyroscope Fibers

IXF-PMG-IB-1550-80-019-LS

IXF-PMG-IB-1550-80-019-LS fibers are highly birefringent polarization fibers designed for high-volume production of compact fiber-optic gyroscope operating at 1550 nm.

This fiber based on 30 years' experience in Polarization Maintaining Gyro fiber features the highest birefringence and shortest beat length available in the industry - 0.9 mm at 633nm. Thus it offers high Polarization Extinction Ratio for fiber-optics gyro coils, even with extremely small radius (below 30 mm). This record birefringence has no impact on the other key optical specifications: attenuation, mode field diameter and numerical aperture remain the same to ensure low loss and excellent coupling under bent configuration.



Based on Tiger type fiber design - also called elliptical clad - the material composition of the clad has been carefully selected in order to increase the birefringence stress and maintain a perfect round shape of the cOre - which is impossible to do with conventional Panda type fibers, limited by the size of the stress rods, and Bow-tie type leads to severe deformation of the core. The clad shape was optimized in order to get good recognition by standard PM splicing equipment, spliceability with standard PM panda fibers is excellent, assuring seamless integration at manufacturing floors.

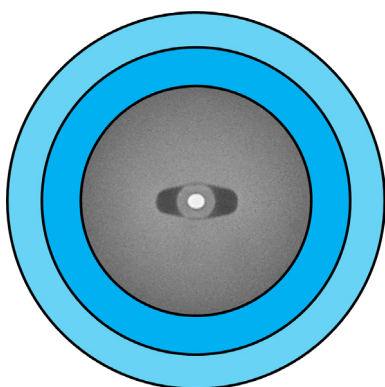
The external coating diameter is reduced to a remarkable 128 μm value for an 80 μm clad fiber, helping further to reduce the outside size of coils and limiting the Shupe effect in Fiber Optic Gyroscopes (FOG).

FEATURES & BENEFITS

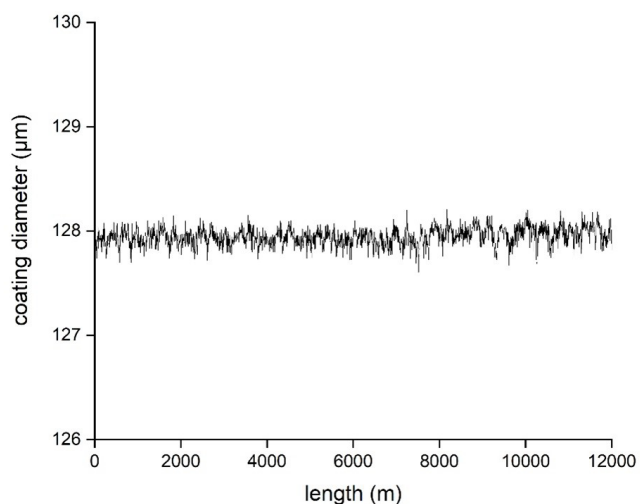
- Highest birefringence available
- High PER in small coils - down to 30 mm or less
- Optimized dual layer coating for best performances over temperature range
- Reduced 128 μm coating with tight tolerances for high accuracy coiling
- State of the art 1 μm core/clad concentricity for perfect low-loss coupling
- Easy to splice with standard Panda PM fibers

APPLICATIONS

- Small Gyro coils in large volume production
- Fiber Optic Current sensors (FOCS)
- Delays lines
- Small form factors PM components
- Any application requiring high PER over long length



IXF-PMG-IB structure features a round core, an elliptical clad designed for high birefringence and easy splicing, and an optimized dual layer coating



Fiber external diameter over 12 km

IXF-PMG-IB-1550-80-019-LS TECHNICAL SPECIFICATIONS

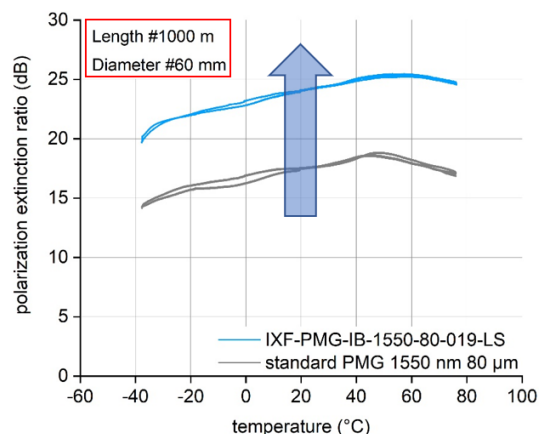
Parameters

Cutoff wavelength	< 1480 nm
Attenuation @ 1550 nm	< 1.5 dB/km
Beat length @ 633 nm	< 0.9 mm
Beat length @ 1550 nm	< 2.2 mm
MFD @ 1550 nm	6.7 ± 0.5 μm
Numerical aperture	0.19 ± 0.02
Core/Clad concentricity	80 ± 1 μm
Cladding diameter	< 1 μm
Coating diameter	128 ± 2 μm
Proof test level	100 kpsi

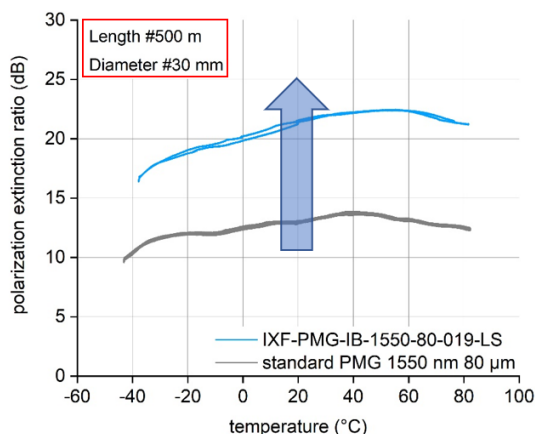
Design parameters

Operating wavelength	500 - 1600 nm
Design	Tiger
Core shape	Round
Coating material	Dual acrylate
Operating temperature range	-40 to +85°C

 60 mm coil diameter



 30 mm coil diameter



PER measurement of two free standing coils with respectively 60 mm diameter with 1km length, and 30 mm diameter with 500 m length. IXF-PMG-IB fiber improves PER by at least 5 dB over operational temperature range versus conventional PMG fibers

- Related application note: [Polarization Maintaining splicing protocol for ixblue PMG Tiger IB IXF-PMG-IB-1550-80-019-LS using the Fujikura FSM-100P splicer.pdf](#)
- Related products: this fiber is part of the extensive components portfolio for FOG developed in ixblue, this includes PM fibers, PM gyro coils, polarizing fibers, Erbium doped fibers and accelerometers.