

PM fibers for Faraday sensing

LB650 | LB1060 | LB1300 | LB1300RC | PME1300-10

Spun fiber

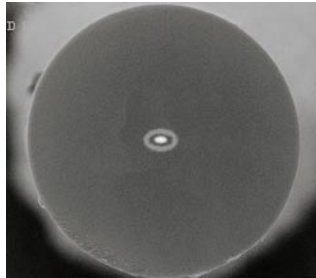
Rotating glass preform during fiber drawing process produces a waveguide with unique properties: all fiber non-uniformities are averaged along all possible directions, effectively cancelling out total fiber birefringence. With total (but not local) birefringence close to zero, we obtain a fiber that will hold **circular** polarization (even when bent or twisted). Unlike conventional PM fibers that can hold only linearly polarized light, or annealed fiber that requires special handling, this low-birefringence fiber preserves both linear and circular polarization and can relay it with minimum error over large distances.

Highly-birefringent preforms with incorporated stress produce spun fibers that can withstand significant bending and twisting and hold polarization over large number of coils with reasonable accuracy (without costly annealing process). Polarization accuracy in this case depends on local (instant) birefringence that introduces a small constant error, independent of fiber length.

Elliptical core fiber

Our elliptical-core PME1300-10 fiber provides high polarization extinction and insensitivity to bending and twisting stress. Unlike conventional PM fibers, birefringence of the elliptical-core waveguide has low thermal dependence (10 times lower than Panda).

Due to core geometry the splice losses to a conventional circular-core fiber (SMF, Panda or Bow-tie) are asymmetrical - 0.5 dB for circular-to-elliptical coupling and 2.5 dB for elliptical-to-circular arrangement.



Features

- High extinction ratio
- Reduced coupling loss
- Low temperature dependence

Applications

- Fiber-optic gyros
- Optical current sensors
- Fiber amplifiers

Specifications

	LB650	LB1060	LB1300	LB1300RC	PME1300-10
Operating wavelength	600 - 900 nm	900 - 1100 nm	1300 - 1600 nm	1300 - 1600 nm	1300 - 1600 nm
Cut-off wavelength	< 580 nm	< 915 nm	< 1280 nm	< 1280 nm	< 1280 nm
Beatlength	4 mm	7 mm	13 mm	13 mm	9 mm
Spin period	3 mm	3 mm	3 mm	3 mm	—
Attenuation	6 dB/km	6 dB/km	4 dB/km	5 dB/km	8 dB/km
Mode field dimensions	6 μ m	8 μ m	9 μ m	9 μ m	13 x 8 μ m
Cladding diameter	125 μ m	125 μ m	125 μ m	80 μ m	125 μ m
Coating diameter	250 μ m	250 μ m	250 μ m	200 μ m	250 μ m
Core-clad concentricity	< 0.5 μ m	< 0.5 μ m	< 0.5 μ m	< 0.5 μ m	< 0.5 μ m
Cladding offset	< 5 μ m	< 5 μ m	< 5 μ m	< 5 μ m	< 5 μ m
Coating material	acrylate	acrylate	acrylate	acrylate	acrylate
Proof test	100 kpsi	100 kpsi	100 kpsi	100 kpsi	100 kpsi
Bending radius	> 20 mm	> 20 mm	> 20 mm	> 12 mm	> 20 mm

Major spun fiber parameters can be optimized depending on your application requirements, such as device sensitivity, number and size of fiber coils. To discuss your particular application please contact us at (416) 848 0258 or info@ivgfiber.com

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