Reduced Coating PM Gyroscope & Sensor Fibers

Nufern's 80 µm PANDA-style PM Gyroscope fibers have extremely high birefringence and exceptionally tight dimensional specifications, critical for manufacturing high precision, high-performance gyro-coils. These fibers feature a reduced coating diameter to make smaller gyro coils possible. High consistency and extreme end-to-end control of optical properties provide particular advantage in this application by reducing fiber generated signal artifacts. The intrinsically high level of radiation resistance allows this family to operate for extended periods of time on low earth orbits, near and deep space, and in applications where risk of exposure to man-made radiation is great. The PANDA-style configuration is preferred over bow-tie or elliptical clad designs because of its advantages in process scalability (for its cost impact) and product uniformity.

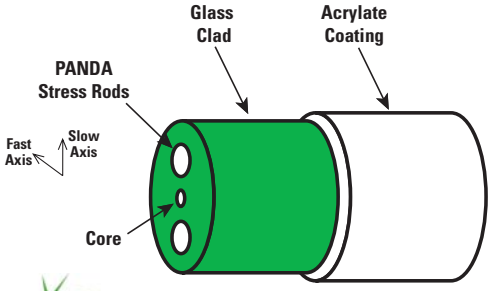
Typical Applications

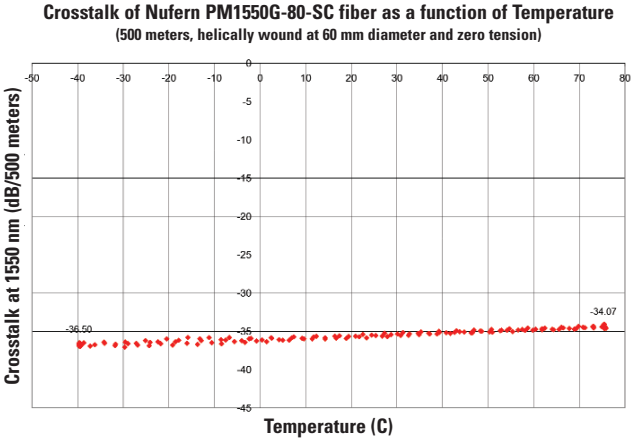
- Fiber optic gyroscopes (FOGs)
- Fiber optic voltage and current sensors
- Laser pigtailing
- Small form factor couplers
- Specialty sensors

Features and Benefits

- PANDA-style PM — Superior performance, intrinsically good radiation performance
- Extremely high birefringence — Less gyroscope drift
- Exceptionally tight dimensional control — Uniform, deterministic gyroscope coil performance
- Bend insensitive & Reduced coating diameter — Smaller diameter coils possible
- Excellent crosstalk stability over temperature range — Minimize Shupe (insensitive to temperature drift) effects

Optical Specifications	PM850G-80-SC	PM1300G-80-SC	PM1550G-80-SC
Operating Wavelength (nominal)	810 – 870 nm	1280 – 1340 nm	1520 – 1620 nm
Attenuation	≤ 5 dB/km @ 820 nm	≤ 2 dB/km @ 1300 nm	≤ 2 dB/km @ 1550 nm
Mode Field Diameter	4.5 ± 0.5 µm @ 850 nm	6.0 ± 0.5 µm @ 1300 nm	6.3 ± 0.5 µm @ 1550 nm
Second Mode Cut-Off	720 ± 60 nm	1210 ± 60 nm	1460 ± 60 nm
Normalized Cross Talk (nominal)	≤ -25 dB at 850 nm per 100 m	≤ -25 dB at 1300 nm per 100 m	≤ -25 dB at 1550 nm per 100 m
H-Parameter (nominal)	≤ 3×10^{-5} m^{-1}	≤ 3×10^{-5} m^{-1}	≤ 3×10^{-5} m^{-1}
Beat Length	≤ 1.2 mm @ 633 nm	≤ 1.2 mm @ 633 nm	≤ 1.2 mm @ 633 nm
Geometrical & Mechanical Specifications			
Clad Diameter	80 ± 1 µm	80 ± 1 µm	80 ± 1 µm
Coating Diameter	130 ± 5 µm	125 ± 5 µm	125 ± 5 µm
Core-Clad Concentricity	≤ 0.5 µm	≤ 0.5 µm	≤ 0.5 µm
Coating/Clad Offset	≤ 5 µm	≤ 5 µm	≤ 5 µm
Coating Material	UV Cured, Dual Acrylate	UV Cured, Dual Acrylate	UV Cured, Dual Acrylate
Operating Temperature	- 60 to + 105°C	- 60 to + 105°C	- 60 to + 105°C
Storage Temperature	- 65 to + 105°C	- 65 to + 105°C	- 65 to + 105°C
Proof Test Level	≥ 100 kpsi (0.7 GN/m^2)	≥ 100 kpsi (0.7 GN/m^2)	≥ 100 kpsi (0.7 GN/m^2)





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Nufern products are manufactured under an ISO 9001:2000 certified quality management system.

RoHS

Standard specifications and design parameters are listed above. Specifications are subject to change without notice. Other configurations such as alternative form factors, optimized cut-off and UV cured color coating may be available. Let us know how Nufern can assist with your requirements.

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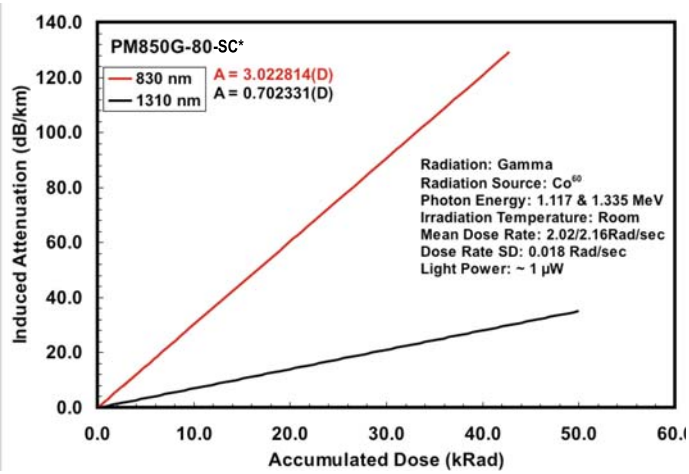

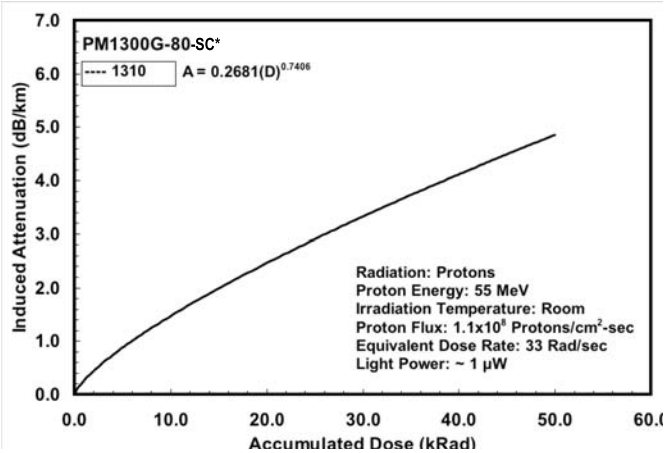

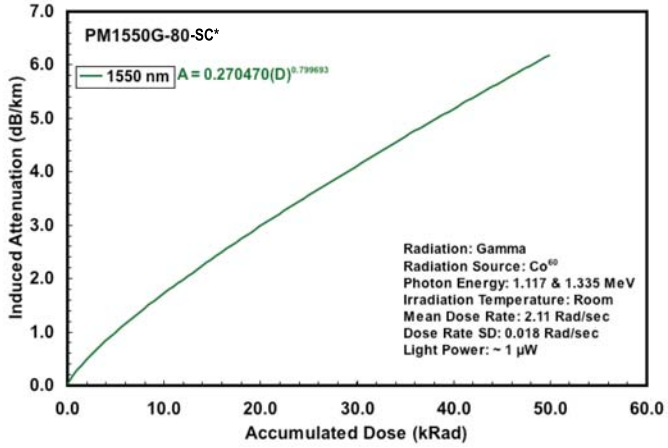

** Radiation tests performed on fibers with 165 µm coatings. Performance is expected to be similar for fibers with 125 µm coatings due to the negligible influence of coating thickness on radiation-induced loss.*