850 nm PM Gyroscope & Sensor Fibers

Nufern's 850 nm PANDA-style PM Gyroscope fibers have extremely high birefringence and exceptionally tight dimensional specifications, critical for manufacturing high precision, high-performance gyro-coils. 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 operation for extended periods of time on low earth orbits, near and deep space, and applications where exposure to man-made radiation is expected. The Panda-style configuration is preferred over bow-tie or elliptical clad designs because of its advantages in process scalability and product uniformity. These fibers are offered in industry standard specifications and Nufern's high performance (HP) versions optimized for exceptional splicability and offering the tightest tolerance specifications available.

Typical Applications

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

Features & Benefits

- PANDA-style PM — Superior performance, intrinsically good radiation performance
- Extremely high birefringence — Less gyroscope drift
- Bend insensitive — Smaller diameter coils possible
- Excellent crosstalk stability over temperature range — Minimize Shupe (insensitive to temperature drift) effects
- HP version with best specifications available — Improved repeatability, coil winding accuracy and splicability

Optical Specifications	**PM850G-80/125-5**	**PM850G-80/135-2HP**	**PM850G-80/170-5**	**PM850G-80/170-2HP**
Operating Wavelength	810 – 870 nm	810 – 870 nm	810 – 870 nm	810 – 870 nm
Core NA	0.160	0.160	0.160	0.160
Mode Field Diameter	4.5 ± 0.5 µm @ 850 nm	4.5 ± 0.5 µm @ 850 nm	4.5 ± 0.5 µm @ 850 nm	4.5 ± 0.5 µm @ 850 nm
Cutoff	720 ± 60 nm	720 ± 60 nm	720 ± 60 nm	720 ± 60 nm
Core Attenuation	≤ 5.0 dB/km @ 820 nm	≤ 4.2 dB/km @ 850 nm ≤ 4.5 dB/km @ 820 nm	≤ 5.0 dB/km @ 820 nm	≤ 4.2 dB/km @ 850 nm ≤ 4.5 dB/km @ 820 nm
Beat Length	≤ 1.2 mm @ 633 nm	≤ 1.2 mm @ 633 nm	≤ 1.20 mm @ 633 nm	≤ 1.20 mm @ 633 nm
H-Parameter	≤ 3.00000×10^{-5} m^{-1}@ 850 nm	≤ 3.00000×10^{-5} m^{-1}@ 850 nm	≤ 3.00000×10^{-5} m^{-1}@ 850 nm	≤ 3.00000×10^{-5} m^{-1}@ 850 nm
Normalized Cross Talk	≤ - 25.0 dB at 100 m @ 850 nm	≤ - 25.0 dB at 100 m @ 850 nm	≤ - 25.0 dB at 100 m @ 850 nm	≤ - 25.0 dB at 100 m @ 850 nm
Geometrical & Mechanical Specifications				
Cladding Diameter	80.0 ± 1.0 µm	80.0 ± 1.0 µm	80.0 ± 1.0 µm	80.0 ± 1.0 µm
Core Diameter	3.5 µm	3.5 µm	3.5 µm	3.5 µm
Coating Diameter	125.0 ± 5.0 µm	135.0 ± 2.0 µm	170.0 ± 5.0 µm	170.0 ± 2.0 µm
Coating Concentricity	< 5.0 µm	< 5.0 µm	< 5.0 µm	< 5.0 µm
Core/Clad Offset	≤ 0.50 µm	≤ 0.50 µm	≤ 0.50 µm	≤ 0.50 µm
Coating Material	UV Cured, Dual Acrylate	NuCOAT-LTg	UV Cured, Dual Acrylate	NuCOAT-LTg
Operating Temperature Range	-60 to 105 °C	-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	-65 to 105 °C
Prooftest Level	≥ 100 kpsi (0.7 GN/m²)	≥ 100 kpsi (0.7 GN/m²)	≥ 100 kpsi (0.7 GN/m²)	≥ 100 kpsi (0.7 GN/m²)

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HP versions with NuCOAT-LTg exclusively

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RoHS

Custom developed fiber (FUD) 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.