1310nm Panda Polarization-Maintaining Fiber with Ultra-Thin 135?m Coating – PM1310-80-6.0/135 for High-Density FOG Coils

Product Overview

Fabricated using the Modified Chemical Vapor Deposition (MCVD) process, this fiber features a germanosilicate core flanked by two boron-doped stress-applying parts (SAPs) that generate high linear birefringence. This structure effectively preserves the input polarization state over long path lengths, achieving polarization crosstalk of ⩽ -25 dB per meter—critical for maintaining high bias stability in closed-loop FOGs.

A key innovation is its reduced 135 μm dual acrylate coating—significantly thinner than standard 245 μm fibers—enabling tighter coil winding densities without microbending losses. This makes it ideal for aerospace-grade inertial navigation systems where size, weight, and performance are paramount. Despite its slim profile, the fiber maintains ⩾100 kpsi proof tension and excellent geometric uniformity for consistent splicing yield.

Technical Specifications

Brand Name	Winner
Model Number	PM1310-80-6.0/135

Fiber Type	Panda-Type Polarization-Maintaining Single-Mode Fiber
Operating Wavelength	1310 nm
Attenuation	⩽0.8 dB/km @1310 nm
Mode Field Diameter	6.0 ± 0.5 μm @1310 nm
Cut-off Wavelength	1100–1270 nm
Cladding Diameter	125 ± 1 μm
Coating Diameter	135 ± 5 μm
Polarization Crosstalk	⩽ -25 dB per meter @1310 nm
Bow (Shoot Length)	⩽ 3.0 mm per meter
Tension Screening Level	⩾100 kpsi
Manufacturing Process	Modified Chemical Vapor Deposition (MCVD)

Key Performance	High geometric uniformity for low splicing loss (0.2 dB with axis alignment) Excellent bending stability down to 10 mm radius Low welding loss and compatibility with rotational fusion splicers Stable beat length across temperature cycles (-40°C to +85°C)

Applications

- High-precision fiber optic gyroscopes (FOGs) for aerospace and defense navigation
- Polarization-maintaining couplers and interferometers for coherent sensing
- Laser diode pigtails requiring polarized output in telecom and lidar systems
- Polarization-sensitive fiber optic current and acoustic sensors
- Test platforms for quantum optics and photonic integrated circuits

Integration Guidance

For optimal polarization extinction ratio (PER), align the slow axis (indicated by SAP orientation) during splicing using a rotational fusion splicer. Maintain bend radii >10 mm to avoid induced birefringence distortion. The 135 µm thin coating reduces coil volume by ~45% compared to standard 245 µm fibers, making it ideal for miniaturized inertial measurement units (IMUs).