Bend-Resistant Single-Mode Specialty Fiber at 1310nm – Ultra-Low Microbending Loss for Sensing and Laser Applications

Product Overview

Winner bend-resistant single-mode fiber optimized for 1310 nm operation is designed for applications where tight bends, mechanical stress, or compact packaging would degrade conventional fiber performance. Through precise refractive index profiling and enhanced coating adhesion, the fiber achieves ultra-low microbending sensitivity while maintaining a stable mode field diameter (MFD) of 6.0 ± 0.5 μm—critical for efficient coupling into lasers, amplifiers, and interferometric sensors.

The fiber exhibits attenuation ⩽0.8 dB/km at 1310 nm and undergoes ⩾100 kpsi tension screening to ensure robustness during handling and deployment. Its geometric precision (cladding diameter 125 ±1 μm, coating 245 ±5 μm) supports low splice loss with standard SMF and high repeatability in active device integration.

Technical Specifications

Brand Name	Winner
Model Number	SM1310

Fiber Type	Single-Mode Specialty Fiber
Operating Wavelength	1310 nm
Attenuation	⩽0.8 dB/km @1310 nm
Mode Field Diameter (MFD)	6.0 ± 0.5 μm
Cladding Diameter	125 ± 1 μm
Coating Diameter	245 ± 5 μm
Tension Screening Level	⩾100 kpsi
Key Performance	Ultra-low microbending loss Enhanced macrobend resilience Low splicing loss to standard G.652.D fiber

Applications

- Fiber optic sensors (FBG, interferometric, distributed) requiring stable response under strain or coiling
- Pump combiners and delivery fibers in fiber lasers and amplifiers operating near 1310 nm
- Compact photonic modules with tight routing constraints (e.g., aerospace, medical endoscopy)

- Industrial test & measurement setups where repeated bending or vibration occurs

Design Notes

Unlike standard telecom fibers (e.g., ITU-T G.652.D), this specialty fiber prioritizes mechanical robustness and bend insensitivity over ultra-low attenuation or dispersion control. It is not intended for long-haul data transmission but excels in active component integration and sensing environments where physical reliability outweighs raw bandwidth requirements. Compatible with standard cleavers, fusion splicers (using SM mode), and FC/PC connectors.