250 Micron Single-Mode Bare Optical Fiber Reel – ITU-T G.652.D Compliant, Low Attenuation for 10G/100G/400G Networks

Product Overview

Winner single-mode bare optical fiber features a standard 9/125 μm core/cladding geometry with a 250 μm UV-cured acrylate coating, engineered to meet or exceed ITU-T G.652.D specifications—the most widely deployed single-mode fiber standard globally. With ultra-low water peak attenuation (≤0.34 dB/km @1383 nm), it enables full-spectrum transmission from 1260 nm to 1625 nm (O-, E-, S-, C-, L-, and U-bands), making it ideal for CWDM, DWDM, 5G fronthaul, and high-capacity data center interconnects.

The fiber exhibits exceptional geometric control: core-cladding concentricity error ≤0.6 μm and cladding non-circularity ≤1.0%, ensuring low splice loss (<0.03 dB typical) and high connector yield. Its cutoff wavelength of ≤1260 nm guarantees true single-mode operation across all operating bands. With a macrobend radius of ≥4 m and robust performance over -40°C to +85°C, Winner single-mode fiber maintains signal integrity in demanding indoor and outdoor environments. The product supports data rates from 1G up to 800G and beyond, limited only by transceiver technology—not the fiber itself.

Technical Specifications

Brand Name	Winner
Model Number	G.652.D (standard); also available in G.657.A1/A2, G.654.E, G.655 upon request
Fiber Type	Single-Mode
Core Diameter	9 μm
Cladding Diameter	125 ± 0.7 μm
Coating Diameter	250 μm
Cladding Non-Circularity	⩽1.0%
Core/Cladding Concentricity Error	⩽0.6 μm
Cut-off Wavelength (λ_c)	⩽1260 nm
Macrobend Radius	⩾4 m
Attenuation	⩽0.33 dB/km @1310 nm ⩽0.34 dB/km @1383 nm (low water peak) ⩽0.20 dB/km @1550 nm ⩽0.24 dB/km @1625 nm

Operating Temperature Range	-40°C to +85°C

Applications

- Long-haul and metro telecommunications networks requiring full-spectrum (1260–1625 nm) transmission capability
- Data center interconnects (DCI) supporting 10G/25G/100G/400G/800G Ethernet with coherent or direct-detect optics
- 5G mobile fronthaul, midhaul, and backhaul infrastructure demanding low latency and high reliability
- Smart city backbone networks, including traffic control, surveillance, and IoT sensor aggregation
- Industrial automation and power utility communication systems operating in extreme temperature environments

Standards & Compatibility

Winner single-mode fiber complies with ITU-T G.652.D, IEC 60793-2-50 B1.3, and Telcordia GR-20-CORE requirements. It is fully compatible with standard SMF connectors (LC, SC, FC), fusion splicers, and all major transceiver standards including 10GBASE-LR, 100GBASE-LR4, 400GBASE-FR4, and OTU4. For bend-sensitive applications, G.657.A1/A2 variants are available with enhanced macrobend performance down to 7.5 mm radius.