



High-Speed Single-Mode Bare Optical Fiber for 5G Networks – 250 μ m Coated, Low Dispersion, Wide Temperature Range (-40°C to +85°C)

Product Overview

Winner single-mode bare optical fiber with a 250 μ m dual acrylate coating is engineered to meet the stringent demands of 5G fronthaul/midhaul, cloud-scale data centers, and long-haul telecom networks. Built on a precision 9/125 μ m geometry platform, the fiber achieves exceptional signal integrity through ultra-low attenuation (≤ 0.20 dB/km @1550 nm), controlled chromatic dispersion (< 18 ps/(nm \cdot km) at 1550 nm), and outstanding geometric consistency.

Its core-cladding concentricity error of ≤ 0.6 μ m and cladding non-circularity of $\leq 1.0\%$ minimize splice loss and ensure compatibility with automated fusion splicing systems. The fiber operates reliably across an extended temperature range of -40°C to +85°C, making it suitable for outdoor cabinets, unconditioned cell sites, and industrial edge deployments. With a cutoff wavelength ≤ 1260 nm and warpage ≥ 4 m, it guarantees stable single-mode operation and mechanical robustness during handling and cabling.

Technical Specifications

Brand Name	Winner
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Model Number	G.652.D (standard); G.654.E, G.655, G.657.A1/A2, B3 available
Fiber Type	Single-Mode Bare Optical Fiber
Core Diameter	9 μm
Cladding Diameter	125 \pm 0.7 μm
Coating Diameter	250 μm
Attenuation	≤ 0.33 dB/km @1310 nm ≤ 0.34 dB/km @1383 nm ≤ 0.20 dB/km @1550 nm ≤ 0.24 dB/km @1625 nm
Chromatic Dispersion	<18 ps/(nm \cdot km) @1550 nm <22 ps/(nm \cdot km) @1625 nm
Cut-off Wavelength (λ_c)	≤ 1260 nm
Core/Cladding Concentricity Deviation	≤ 0.6 μm
Cladding Roundness Deviation	$\leq 1.0\%$
Warpage	≥ 4 m



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

- 5G wireless infrastructure: CPRI/eCPRI fronthaul, Open RAN midhaul links
- Data center interconnects (DCI) supporting 10G/25G/100G Ethernet and OTN
- Metro aggregation and access networks requiring high bandwidth density
- Industrial IoT gateways and edge computing nodes in extreme environments
- Long-distance backbone segments with minimal dispersion compensation

Standards & Compatibility

Winner fiber complies with ITU-T G.652.D, IEC 60793-2-50 B1.3, and Telcordia GR-20-CORE. It is fully compatible with standard LC/SC/FC connectors, fusion splicers, and transceivers including SFP+, QSFP28, and CFP2 for 10GBASE-LR, 25GBASE-ER, and 100GBASE-LR4 applications.