

Sales Catalog of HNK Telecommunication Products

Fiber Optic Cable

Single Mode 9/125 G652D

This Single-Mode Fiber is designed specially for optical transmission systems, which operates over the entire wavelength window from 1260 nm to 1625 nm. It has a low dispersed in the 1310 nm window. By suppressing the water peak that occurs near 1383 nm in conventional single mode fiber due to hydroxyl (OH-) ions absorption, the Fiber is able to open E-band (1360 to 1460nm) for operation, and consequently provides 100 nm more usable wavelengths.

Thanks to its broad usable optical spectrum and outstanding attenuation performance, The Single-mode Fiber is the optimum choice that supports various applications such as Ethernet, Internet Protocol (IP), Asynchronous Transfer Mode (ATM), Synchronous Distribution Network (SDH) and Wavelength Division Multiplexing (WDM). The Single mode Fiber provides wider bandwidth and much lower signal attenuation for backbone, metropolitan area and access networks. It enables bandwidth demanding of multi-service like voice, digital and image transmission; at the same time, it also enables fiber attenuation demanding for extended long distance transmission.

The fiber complies with or even exceeds the ITU-T Recommendation G.652.D and the IEC 60793-2-50 type B1.3 Optical Fiber Specification.

Optical Characteristics for Single Mode 9/125 μm (G652D)

CHARACTERISTIC	CONDITION	SPECIFIC VALUE	UNIT
Optical Characteristics			
Attenuation	1310 nm	≤ 0.34	[dB/km]
	1383 nm	≤ 0.34	
	1550 nm	≤ 0.20	
	1625 nm	≤ 0.23	
Attenuation vs. Wavelength Max. α Difference	1285-1330 nm	≤ 0.03	[dB/km]
	1525-1575 nm	≤ 0.02	
Dispersion Coefficient	1285-1340 nm	$\geq -3.4 \leq 3.4$	[ps/(nm.km)]
	1550 nm	≤ 18	
	1625 nm	≤ 22	
Zero Dispersion Wavelength		1300-1324	[nm]
Zero Dispersion Slope		≤ 0.091	[ps/(nm ² .km)]
Zero Dispersion Slope Typical Value		0.086	[ps/(nm ² .km)]
PMD	Maximum Individual Fiber	≤ 0.10	[ps/ $\sqrt{\text{km}}$]
	Link Design Value (M=20, Q=0.01%)	≤ 0.06	
	Typical Value	0.04	
Cable Cutoff Wavelength λ_{cc}		≤ 1260	[nm]
Mode Field Diameter (MFD)	1310 nm	8.7~9.5	[μm]
	1550 nm	9.9~10.9	[μm]
Effective Group Index of Refraction (N_{eff})	1310 nm	1.466	
	1550 nm	1.467	
Point Discontinuities	1310 nm	≤ 0.05	[dB]
	1550 nm	≤ 0.05	[dB]
Macro Bending Induced Attenuation			
1 Turn Around a Mandrel @ 16mm Radius	1550 nm	≤ 0.05	[dB]
100 Turns Around a Mandrel @ 25mm Radius	1310 nm & 1550 nm	≤ 0.05	[dB]
100 Turns Around a Mandrel @ 30mm Radius	1625 nm	≤ 0.05	[dB]
Geometrical Characteristics			
Cladding Diameter		125.0 \pm 0.7	[μm]
Cladding Non-Circularity		≤ 1.0	[%]
Coating Diameter		245 \pm 7	[μm]
Coating/Cladding Concentricity Error		≤ 12.0	[μm]
Coating Non-Circularity		≤ 6.0	[%]
Core/Cladding Concentricity Error		≤ 0.6	[μm]
Curl (Radius)		≥ 4	[m]
Delivery Length		2.1 to 50.4	[km/reel]
Environmental Characteristics			
Temperature Dependence (Induced Attenuation)	1310 nm, 1550 nm & 1625 nm		
Temperature Humidity Cycling (Induced Attenuation)	- 60°C to +85°C	≤ 0.05	[dB/km]
Damp Heat Dependence (Induced Attenuation)	-10°C to +85°C, 98% RH	≤ 0.05	[dB/km]
Water Soak Dependence (Induced Attenuation)	85°C and 85% RH, for 30days	≤ 0.05	[dB/km]
Dry Heat Aging	23°C, for 30days	≤ 0.05	[dB/km]
	85°C	≤ 0.05	[dB/km]
Mechanical Characteristics			
Proof Test		≥ 9.0	[N]
		≥ 1.0	[%]
		≥ 100	[Kpsi]
Coating Strip Force	Typical Average Force	1.5	[N]
	Peak Force	≥ 1.3 & ≤ 8.9	[N]
Dynamic Stress Corrosion Susceptibility Parameter (N_d , Typical)		≥ 20	