

## Sales Catalog of HNK Telecommunication Products

### Fiber Optic Cable

#### Multimode 50/125 OM4

OM4 fiber offers a minimum effective modal bandwidth of 4700 MHz-km at 850 nm, compared with 2000 MHz-km for OM3. This OM4 fiber is a 50  $\mu\text{m}$  laser-optimized fiber with extended bandwidth with 40 and 100 Gigabit Ethernet speeds, supports Ethernet, Fiber Channel, and OIF applications, allowing extended reach upwards of 550 meters at 10 Gb/s for ultra long building backbones and medium length campus backbones. With an Effective Modal Bandwidth of 4700 MHz-km (more than double the IEEE requirement for 10 Gb/s 300 meters support), OM4 fiber is also especially well suited for shorter reach data Centers and high performance computing applications.

The OM4 multimode fiber complies with or exceeds IEC 60793-2-10 type A1a.3 Optical Fiber Specification, ISO/IEC 11801 OM-4 Specification, TIA/EIA-492AAAD detail Specification.

#### Optical Characteristics for Multimode 50/125 $\mu\text{m}$ (OM4)

CHARACTERISTIC	CONDITION	SPECIFIC VALUE	UNIT
<b>Optical Characteristics</b>			
<b>OM4</b>			
Attenuation	850 nm	$\leq 2.4$	[dB/km]
	1300 nm	$\leq 0.6$	
Minimum Modal Bandwidth	850 nm	$\geq 3500$	[MHz.km]
	1300 nm	$\geq 500$	
Effective Modal Bandwidth	850 nm	$\geq 4700$	[MHz.km]
Application Support Distance on	1000 BASE-SX (850nm)	1100	[m]
	10G BASE-SR (850nm)	550	
	40&100Gigabit Ethernet (850nm)	150	
Numerical Aperture (NA)		$0.200 \pm 0.015$	
Group Index of Refraction (Typical)	850 nm	1.482	
	1300 nm	1.477	
Zero Dispersion Wavelength, $\lambda_0$		1295-1340	[nm]
Zero Dispersion Slope, $S_0$	$1295\text{nm} \leq \lambda_0 \leq 1310\text{nm}$	$\leq 0.105$	[ps/(nm <sup>2</sup> .km)]
	$1310\text{nm} \leq \lambda_0 \leq 1340\text{nm}$	$\leq 0.000375 \cdot (1590 - \lambda_0)$	
Macro Bending Induced loss 100 Turns @37.5mm Radius	850 nm	$\leq 0.50$	[dB]
	1300 nm	$\leq 0.50$	
Macro Bending Induced loss 2 Turns @15mm Radius	850 nm	$\leq 1.0$	[dB]
	1300 nm	$\leq 1.0$	
<b>Geometrical Characteristics</b>			
Core Diameter		$50 \pm 2.5$	[ $\mu\text{m}$ ]
Cladding Diameter		$125.0 \pm 1.0$	[ $\mu\text{m}$ ]
Core Non-Circularity		$\leq 5.0$	[%]
Cladding Non-Circularity		$\leq 1.0$	[%]
Coating Diameter		$245 \pm 7$	[ $\mu\text{m}$ ]
Coating/Cladding Concentricity Error		$\leq 10.0$	[ $\mu\text{m}$ ]
Coating Non-Circularity		$\leq 6.0$	[%]
Core/Cladding Concentricity Error		$\leq 1.0$	[ $\mu\text{m}$ ]
Delivery Length		Up to 8.8	[km/reel]
<b>Environmental Characteristics</b>			
<b>850 nm &amp; 1300 nm</b>			
Temperature Dependence (Induced Attenuation)	-60°C to +85°C	$\leq 0.10$	[dB/km]
Temperature Humidity Cycling (Induced Attenuation)	-10°C to +85°C, 98% RH	$\leq 0.10$	[dB/km]
Damp Heat Dependence (Induced Attenuation)	85°C and 85% RH, for 30days	$\leq 0.10$	[dB/km]
Water Soak Dependence (Induced Attenuation)	23°C, for 30days	$\leq 0.10$	[dB/km]
Dry Heat Aging	85°C, for 30days	$\leq 0.10$	[dB/km]
<b>Back Scatter Characteristics</b>			
<b>1300 nm</b>			
Step (Mean of Bidirectional Measurement)		$\leq 0.10$	[dB]
Irregularities Over Fiber Length & Point Discontinuity		$\leq 0.10$	[dB]
Attenuation Uniformity		$\leq 0.08$	[dB/km]
<b>Mechanical Characteristics</b>			
Proof Test		$\geq 9.0$	[N]
		$\geq 1.0$	[%]
		$\geq 100$	[Kpsi]
Coating Strip Force	Typical Average Force	1.5	[N]
	Peak Force	$\geq 1.3$ & $\leq 8.9$	[N]
Dynamic Stress Corrosion Susceptibility Parameter ( $N_d$ , Typical)		27	