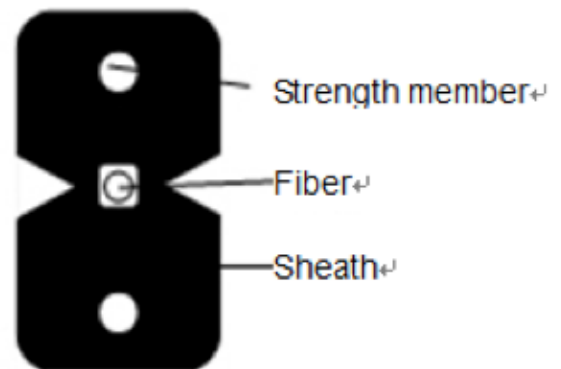


Features

- Lightweight and compact
- Two parallel FRP strength members for optimum fiber protection
- Low-bend-sensitivity fiber (G.657A) provides high bandwidth and excellent communication transmission
- Low Smoke Zero Halogen (LSZH), non-toxic and self-extinguishing jacket *

Applications

- Internal interconnections
- Data cable in distribution networks
- Fire safety requirements



Technical Specifications

DESCRIPTION	UNIT OF MEASUREMENT	1-CORE	2-CORE	4-CORE
Outer diameter	mm	2.0 x 3.0	2.0 x 3.0	2.0 x 3.0
Weight	kg/km	11	11.5	12
Min. bend radius (installation)	mm	20 x cable dia.		
Min. bend radius (operation)	mm	10 x cable dia.		
Installation temp.	°C	- 5 °C ~ + 50 °C		
Operation temp.	°C	- 20 °C ~ + 60 °C		
Storage temp.	°C	- 20 °C ~ + 60 °C		
Max. load (installation)	N	200		
Max. load (operation)	N	100		
Max crush resistance	N/100 mm	2000		

Ordering Information

DESCRIPTION	PART NUMBER
Drop Fiber Cable G.657A, two parallel Fiber Reinforced Plastics (FRP) on both ends, LSZH outer sheath, Black	
1-Core	HN-04-0442
2-Core	HN-04-0443
4-Core	HN-04-0444

* Flame Retardant Test IEC, Non corrosive Test IEC, LSZH Test IEC61034



Customization available upon request.



TEST PROCEDURES		STANDARDS
Tensile performance		LEC 60794-1-2 E1 (future IEC 60794-1-21 E1)
Crush resistance		LEC 60794-1-2 E3 (future IEC 60794-1-21 E3)
Impact		LEC 60794-1-2 E4 (future IEC 60794-1-21 E4)
Repeated bending		LEC 60794-1-2 E6 (future IEC 60794-1-21 E6)
Torsion		LEC 60794-1-2 E7 (future IEC 60794-1-21 E7)
Cable bend		LEC 60794-1-2 E11A (future IEC 60794-1-21 E11A)
Kink		LEC 60794-1-2 E10 (future IEC 60794-1-21 E10)
Flexing		LEC 60794-1-2 E8 (future IEC 60794-1-21 E8)
Temperature cycling (change)	Long length cables	LEC 60794-1-2 F1 (future IEC 60794-1-22 F1)
	Short length cables	LEC 60794-2-50 F12 (future IEC 60794-1-22 F12) (IEC 601300-2-22)
Water penetration		LEC 60794-1-2 F5A/B (future IEC 60794-1-22 F5A/B/C)
Ageing		LEC 60332-1 (DIN VDE 0472-804B) DIN VDE 0482-265
Fire propagation on a vertical cable bundle		LEC 60332-3 (DIN VDE 0472-804C) DIN VDE 0482-260
Smoke emission		LEC 61034 (DIN VDE 0472-816) DIN VDE 0482-268
Fire test with circuit integrity		LEC 60331-25 DIN VDE 0472-814
Fire with shock, circuit integrity		LEC 60331-31
Corrosive fire gases and free of halogen		LEC 60754-1 / 60754-2 (DIN VDE 0472-819) DIN VDE 0482-267



DESCRIPTION	STANDARD SINGLE MODE	LOW WATER PEAK	NZDS	LOW DISPERSION SLOPE NZDS	Bend Insensitive Fiber	Bend Tolerant Fiber	Standard Multi Mode 62.5/125	Standard Multi Mode 50/125	Standard 10G Multi Mode 50/125
ITU-T	G.652.B	G.652.D	G.655	G.656	G.657A	G.657B	G.651	G.651	G.651
ISO/IEC	OS1	OS1/OS2	-	-	-	-	OM1	OM2	OM3
Max attenuation @ 850/1300 nm	-	-	-	-	-	-	3.0/1.0 dB/km	2.8/1.0 dB/km	2.8/1.0 dB/km
Max attenuation @ 1310/1550 nm	0.4/0.3 dB/km	0.4/0.3 dB/km	0.38/0.25 dB/km	0.4/0.3 dB/km	0.4/0.3 dB/km	0.4/0.3 dB/km	-	-	-
Typical attenuation @ 850/1300 nm	-	-	-	-	-	-	2.5/0.6 dB/km	2.5/0.6 dB/km	2.5/0.6 dB/km
Typical attenuation @ 1310/1550 nm	0.34/0.22 dB/km	0.33/0.21 dB/km	0.33/0.21 dB/km	0.33/0.2 dB/km	0.34/0.2 dB/km	0.34/0.22 dB/km	-	-	-
Cable cut-off wavelength (nm)	≤ 1260	≤ 1260	≤ 1260	≤ 1260	≤ 1260	≤ 1260	-	-	-
Mode field diameter (μm) @ 1310 nm	8.8 - 9.6	8.8 - 9.6	N/A	N/A	8.6 - 9.5	6.3 - 9.5	-	-	-
Mode field diameter (μm) @ 1550 nm	9.5 - 11.5	9.9 - 10.9	8.0 - 11	7.0 - 11	N/A	N/A	-	-	-
Proof test (KPSI)	100	100	100	100	100	100	100	100	100
Polarization mode dispersion (ps/√km)	≤ 0.2	≤ 0.1	≤ 0.1	≤ 0.2	≤ 0.2	≤ 0.2	-	-	-
Max dispersion slope ps/nm ² -km	0.092	0.092	N/A	0.052	0.092	N/A	-	-	-
Cladding diameter (μm)	125 ± 1.2	125 ± 0.9	125 ± 0.7	125 ± 0.9	125 ± 0.7	125 ± 0.7	125 ± 1.5	125 ± 1.5	125 ± 1.0
Core/cladding concentricity error	≤ 0.6 μm	≤ 0.6 μm	≤ 0.5 μm	≤ 0.6 μm	≤ 0.5 μm	≤ 0.5 μm	≤ 1.5 μm	≤ 1.5 μm	≤ 1.5 μm
Cladding non-circularity	≤ 1.0 %	≤ 1.0 %	≤ 0.7 %	≤ 1.0 %	≤ 1.0 %	≤ 1.0 %	≤ 1.5 %	≤ 1.5 %	≤ 1.5 %
Coating cladding concentricity error	≤ 12 μm	≤ 12 μm	≤ 12 μm	≤ 12 μm	≤ 12 μm	≤ 12 μm	≤ 10 μm	≤ 10 μm	≤ 10 μm
Bend loss at 15 mm diameter @ 1550 nm (dB)	-	-	-	-	-	≤ 0.5	-	-	-
Bend loss at 20 mm diameter @ 1550 nm (dB/Turn)	-	-	-	-	≤ 0.75	≤ 0.1	-	-	-
Bend loss at 30 mm diameter @ 1550 nm (dB/Turn)	-	-	-	-	≤ 0.025	≤ 0.003	-	-	-
Typically applied bend diameter	-	-	-	60 mm	20 - 30 mm	15 - 20 mm	-	-	-



Fiber Optic Standards and Applications

Fiber type	OS2	OM1	OM2	OM3
Core/cladding diameter in μm	9/125	62.5/125	50/125	50/125
Fiber material	Glass / glass	Glass / glass	Glass / glass	Glass / glass
Applications	Wide-area to access network (FTTH), backbone	LAN, Gigabit Ethernet, Fast Ethernet, Industrial Control Systems		
Standards	ITU G.652D	ITU-T G.651	ITU-T G.651	ITU-T G.651
	IEC 60793-2-50 Type B1.3	IEC60793-2-10 Type A1b	IEC60793-2-10 Type A1a	IEC60793-2-10 Type A1a.2
	ISO/IEC 24702	ISO/IEC 11801	ISO/IEC 11801	ISO/IEC 11801
	TIA/EIA 492-CAAB	TIA/EIA 492AAAA	TIA/EIA 492AAAAB	TIA/EIA 492AAAAC
	TELCORDIA GR-20-CORE	TELCORDIA GR-20-CORE	TELCORDIA GR-20-CORE	TELCORDIA GR-20-CORE

Multimode Fiber Optic Distance

TRANSMISSION STANDARDS	100 MB ETHERNET	1 GB (100 MB) ETHERNET	10 GB ETHERNET	40 GB ETHERNET	100 GB ETHERNET
OM1 (62.5/125)	up to 2000 m (FX)	275 m (SX)	33 m (SR)	Not supported	Not supported
OM2 (50/125)	up to 2000 m (FX)	550 m (SX)	82 m (SR)	Not supported	Not supported
OM3 (50/125)	up to 2000 m (FX)	550 m (SX)	300 m (SR)	100 m	100 m

Fiber Color Codes

No	1	2	3	4	5	6	7	8	9	10	11	12
Color	Blue	Orange	Green	Brown	Gray	White	Red	Black	Yellow	Purple	Pink	Aqua

Fiber Optic Cable Related Standards

Indoor Cables		Standard
Simplex and Duplex Cables		IEC 60794-2-11:2005 (and BS EN 60794-2-11:2005)
Multi-fiber Optical Distribution Cables		IEC 60794-2-11:2005 (and BS EN 60794-2-11:2006)
Outdoor Cables		Standard
Duct and Direct Buried Optical Telecommunication Cables		IEC 60794-2-11:2005 (and BS EN 60794-2-12 :2006)
Optical Self-supporting Aerial Telecommunication Cables		IEC 60794-2-11:2005 (and BS EN 60794-2-12 :2006)

Loose Tube and Filler Rod Color Codes

No	1	2	3	4	5	6	7	8	9	10	11	12
Color	Blue	Orange	Green	Brown	Gray	White	Red	Black	Yellow	Purple	Pink	Aqua