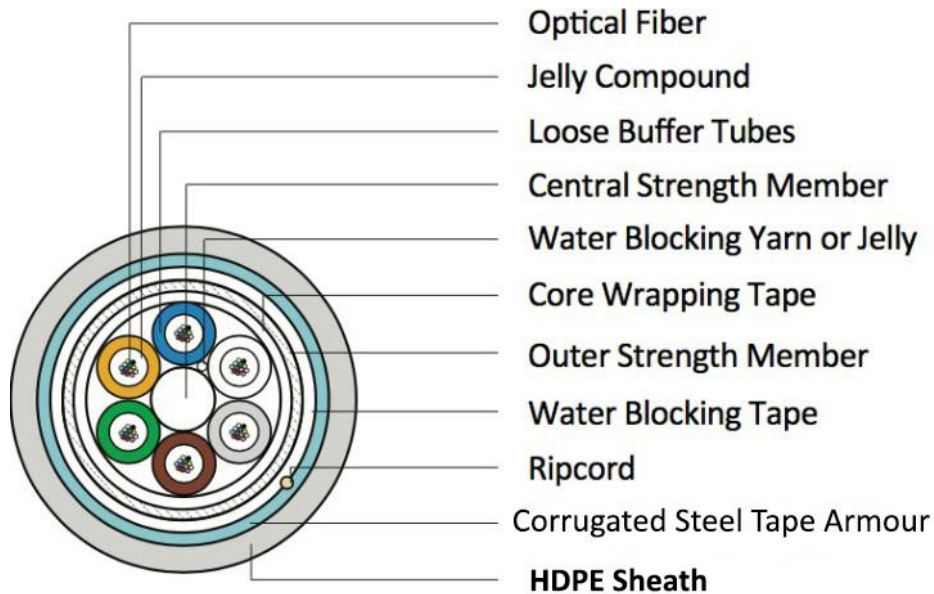




Fiber Optic, Loose-Tube, Armoured, Jelly-filled, Multi-Tube HDPE Cable



Description

Avalon single jacket single-armoured multi loose tube cable is a UV-stabilized, fully water blocked cable for outdoor duct or direct burial applications (HDPE outer jacket). The loose tube design provides stable and highly reliable transmission parameters for a variety of voice, data, video and imaging applications.

This lightweight cable offers durability and flexibility required for many outside plant application. Its compact design is suitable for limited conduit space and the cables are well suited for campus-type environments in and between buildings without building entry joints.

Multi loose tube cables comprises of multiple loose tubes stranded around a central strength member (CSM). These tubes are either filled with optical fibers or replaced with HDPE fillers to maintain geometry of the cable during SZ stranding.

The fiber cable contains multiple color-coded loose tube that contains a maximum of 12 fibers in each tube or 24 fibers per tube in case 576 fibers. All fibers are coated with a 250 µm layer. Both the fiber and the loose tubes are color-coded as per Telcordia requirements.

The optical fibers are contained inside the multi loose tube with thixotropic gel to prevent water penetration and protect the fibers against shock. The multi loose tubes are SZ stranded around a dielectric central strength member and surrounded by water swell-able yarn near the central strength member, core wrapping tape, glass yarn strength member, water blocking tape, rip cord, overall steel tape armor and a HDPE.



Specifications

Optical Characteristics: Singlemode – 9/125 μm OS2 - G.652D

Fiber Type		Unit	OS2 G.652D	
Wavelength		nm	1310	1550
Attenuation		dB/km	≤ 0.40	≤ 0.30
Chromatic dispersion		Ps/nm.km	≤ 3.5	≤ 18
Zero dispersion wavelength		nm	1300 ~ 1324	
Zero dispersion slope		ps/nm ² .km	≤ 0.092	
PMD		ps/vkm	≤ 0.2	
Cut-off wavelength		nm	≤ 1260	
Mode-field diameter		μm	9.2 ± 0.4	10.4 ± 0.5
Macro Bend Loss	30mm radius x 100 turns	dB	-	≤ 0.05
	15mm radius x 100 turns		-	-
	10mm radius x 100 turns		-	-
	7.5mm radius x 100 turns		-	-
Core/Clad Concentricity Error		μm	≤ 0.6	
Cladding Diameter		μm	125 ± 1	
Cladding Non-circularity		%	≤ 1.0	
Coating Diameter		%	245 ± 15	
Proof Test Level		Kpsi	≥ 100	
Fiber curl		m	≥ 4	



Specifications

Optical Characteristics: Multimode - 62.5 μm (OM1), 50μm (OM2, OM3, OM4)

Fiber Type		OM1		OM2		OM3		OM4	
		850	1300	850	1300	850	1300	850	1300
Wavelength	nm	850	1300	850	1300	850	1300	850	1300
Attenuation	dB/km	≤ 3.5	≤ 1.0	≤ 3.0	≤ 1.0	≤ 3.0	≤ 1.0	≤ 3.0	≤ 1.0
Over filled Launch Bandwidth (LED based sources)	MHz.k m	≤ 200	≤ 500	≤ 500	≤ 500	≤ 1500	≤ 500	≤ 3500	≤ 500
Effective Modal Bandwidth (850 nm Laser based sources)	MHz.k m	-		-		≤ 2000		≤ 4700	
Numerical aperture	-	0.275 ± 0.015		0.20 ± 0.015		0.20 ± 0.015		0.20 ± 0.015	
Core diameter	μm	62.5 ± 3.0		50 ± 3.0		50 ± 3.0		50 ± 3.0	
Core Non-Circularity	%	≤ 6.0		≤ 6.0		≤ 6.0		≤ 6.0	
Cladding diameter	μm	125 ± 2.0		125 ± 2.0		125 ± 2.0		125 ± 2.0	
Cladding Non-Circularity	%	≤ 2.0		≤ 2.0		≤ 2.0		≤ 2.0	
Core / Cladding Concentricity Error	μm	≤ 3.0		≤ 3.0		≤ 3.0		≤ 3.0	
Coating diameter	μm	245 ± 5.0		245 ± 5.0		245 ± 5.0		245 ± 5.0	
Proof test level	Kpsi	≤ 100		≤ 100		≤ 100		≤ 100	

Cable Construction

Construction of single unit cables		
Number of fibers		12 - 576
Number of fibers per tube		Max. 12 or 24
Filling Compound in Loose BufferTube		Thixotropic Jelly Compound
Loose buffer tube		PBT (Polybutylene Terephthalate) SZ stranded around FRP
Filler		Polyethylene rod (if necessary)
Central Strength Member		FRP (with HDPE over-coating)
Water blocking material		Water blocking yarn or tape around CSM
Core wrapping tape		Water swell-able tape
Outer strength member		Glass yarns
Ripcord		One ripcord
Armor		Corrugated Steel Tape with Plastic Coating on Both Sides Thickness : Nom.0.15mm (Steel Tape) Nom. 0.05mm (Plastic Coating)
Outer Jacket Material	Material	UV Black HDPE
	Thickness	Nominal 1.5mm HDPE



Colour of fiber Buffer

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

Transmission Performance

Application	OS2 Singlemode (1310/1383/1550)	OM1 Multimode (850/1300)	OM2 Multimode (850/1300)	OM3 Multimode (850/1300)	OM4 Multimode (850/1300)
100Base-FX, Ethernet, @ 1300nm	-	2000m	2000m	2000m	2000m
100Base-LX, @ 1310nm	10000m	-	-	-	-
1000Base-SX, Gigabit, Ethernet @ 850nm	-	275m	550m	550m	550m
100Base-LX, Gigabit Ethernet, @ 1310nm	1000m	550m	550m	550m	550m
10GBase-SR, 10Gbps @ 850nm	-	33m	82m	300m	550m
10GBase-LR, 10Gbps @ 1310nm	1000m	-	-	-	-
40GBase-SR, 40Gbps @ 850nm	-	-	-	100m	150m
40GBase-LR4, 40Gbps @ 1310nm	1000m	-	-	-	-
100GBase-SR10, 100Gbps @ 850nm	-	-	-	100m	150m
100Base-LR4, 100Gbps, @1310nm	1000m				
100Base-ER4, 100Gbps, @ 1550nm	30000m	-	-	-	-

Environmental Data

Temperature range	Value
Storage	- 25°C to +80°C
Service	- 25° C to +70°C
Installation	- 20°C to +70°C

Mechanical Specifications

Tensile Load / Strength	IEC 60794-1-2-E1	2700N
Crush Resistance	IEC 60794-1-2-E3	2200N/10cm
Impact Resistance	IEC 60794-1-2-E4	1 impacts @ 3 points, 5Nm /5J
Torsion Test	IEC 60794-1-2-E7	± 180°, ± 1 turn/2m
Cable Bend	IEC 60794-1-2-E11	20 D for 4 turns, 10 Cycles
Drip test	IEC-60794-1-E14	30 cm, 70°C, 24 hour
Temperature Cycling	IEC 60794-1-2-F1	23°C → -25°C → 70°C → 25°C → -70°C → 23°
Water penetration	IEC 60794-1-2-F5	1 meter head, 3 meter / 24 hours



Physical Specifications

No. of fibers	No. of fibers per tube	*Cable diameter HDPE	Nominal weight	Maximum tensile load		Crush load		Min. bend radius	
		mm	Kg/km	Shortterm	Longterm	Short term	Longterm	Loaded	Installed
				N	N	N/cm	N/cm	mm	mm
24	6	11.6	136/165	2700	1000	220	110	240	120
36	6	11.6	136/165	2700	1000	220	110	240	120
48	12	12.3	150/185	2700	1000	220	110	260	130
72	12	12.3	150/185	2700	1000	220	110	260	130
96	12	14.1	190/220	2700	1000	220	110	290	145
120	12	15.5	221/260	2700	1000	220	110	320	160
148	12	17.0	260/300	2700	1000	220	110	350	175
288	12	19.7	335/385	2700	1000	220	110	400	200
432	12	24.5	505/580	2700	1000	220	110	500	250
576	24	24.3	485/560	2700	1000	220	110	500	250

*Denotes nominal value for HDPE Jacketed Cable

Ordering Information

Part Number	Description
ANFC-XXX-YYY-MLT-AR	Fiber Optic, Loose-Tube, Armoured, Jelly-filled, Multi-Tube HDPE Cable

* XXX = SM (OS2), OM1, OM2, OM3, OM4

* YYY = Number of Cores 024, 048, 096, 144, 288

* Standard reel length 2000m