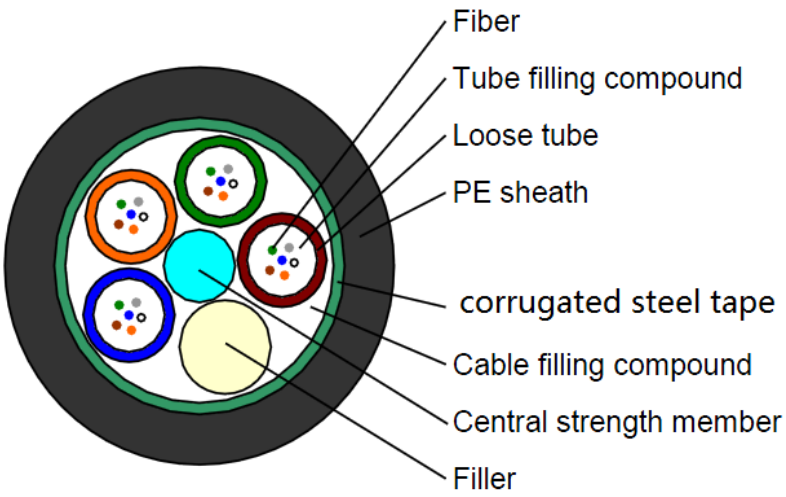
Outdoor MLT Steel Armored Cable
Features



Cable attenuation

Items	Description	
SM 9/125 (G652D/G657A1/G657A2/G657B3)	Attenuation @1310nm	≤0.36dB/km
	Attenuation @1550nm	≤0.22dB/km
MM 50/125 (OM2/OM2+/OM3/OM4)	Attenuation @850nm	≤3.0dB/km
	Attenuation @1300nm	≤1.0dB/km
MM 62.5/125 (OM1)	Attenuation @850nm	≤3.3dB/km
	Attenuation @1300nm	≤1.0dB/km

Outdoor MLT Steel Armored Cable
Specifications

Cable Dimensions and Constructions

Items	Descriptions						
Fiber count	6	8	12	24	48	96	144
Loose tube count	1	2	2	4	4	8	12
Fiber count per tube	6	4	6	6	12	12	12
Filler count	4	3	3	1	1	0	0
Cable diameter(mm)	9.0±0.5	9.0±0.5	9.0±0.5	9.0±0.5	10.0±0.5	12.5±0.5	15.5±0.5
Weight(Approx.)	91	91	91	90	120	172	212
Loose tube	Material		PBT				
	Tube-filling compound		Gel-filled				
	Thickness		0.30±0.05mm				
Central strength member	Material		Steel wire or Steel wire coated with PE				
Filler	Material		PP				
Outer Jacket	Material		PE				
	Color		Black				
	Min. Thickness		1.6mm				
	Diameter		See above				

Outdoor MLT Steel Armored Cable
Specifications

OFC Properties - SM

S. No	Items	Description
1	Standard Compliance	OS2
2	Core Diameter	8.2 ± 0.2 µm
3	Cladding Diameter	125 ± 0.7 µm
4	Coating Diameter	245 ± 10.0 µm
5	Mode Field Diameter	9.2 ± 0.5 @ 1310nm / 10.4±1.0 @ 1550 nm
6	Fibre curl (Radius)	≥ 4 m
7	Cable cut off wave length	< 1260 nm
8	Core/Cladding Concentricity Error	< 0.5 µm
9	Cladding Non-Circularity	< 1.0 %
10	PMD (Polarization Mode Dispersion)	< 0.2 ps/km²
11	Attenuation at Water Peak	< 2 dB/km @ 1310 ± 3 nm
12	Dispersion in ps/(nm².km)	< 3.5 in O band < 18 in C band
13	Strength	High Density Polyethylene with armoring for better protection against Rodent, to be easily deployed in outdoor Duct / Underground Installation.

Outdoor MLT Steel Armored Cable
Specifications

OFC Properties – MM

S. No	Items	Description
1	Core Diameter	50±2.5µm
2	Cladding Diameter	125.0 ± 1 .0µm
3	Coating Diameter	245 ± 7 µm
4	Numerical Aperture	0.200±0.015
5	Dynamic stress corrosion susceptibility parameter（nd.typical）	27
6	Zero Dispersion Wavelength,	1295-1340 nm
7	Core/Cladding Concentricity Error	≤ 1.0µm
8	Cladding Non-Circularity	≤ 6.0 %
9	Zero Dispersion Slope,	≤0.105 ps/km²（1295nm-1310nm）
10	Attenuation at Water Peak	≤0.1 dB/km @ 850 nm&1300
11	Strength	High Density Polyethylene with armoring for better protection against Rodent, to be easily deployed in outdoor Duct / Underground Installation.

Outdoor MLT Steel Armored Cable
Specifications

Optical Fiber Characteristic

G.652D

Category	Items	Unit	Description	
			Before cabled	After cabled
Optical Characteristics	Attenuation at 1310 nm	dB/km	≤ 0.34	≤0.40
	Attenuation at 1383 nm	dB/km	≤ 0.34	≤0.45
	Attenuation at 1550 nm	dB/km	≤ 0.20	≤0.30
	Attenuation at 1625 nm	dB/km	≤ 0.23	≤0.40
	Zero dispersion wavelength	nm	1300~1324	
	Zero dispersion slope	ps/(nm²·km)	≤ 0.091	
	Cable cut-off wavelength λcc	nm	≤ 1260	
	Mode field diameter (MFD) at 1310 nm	μm	8.7~9.5	
	Mode field diameter (MFD) at 1550 nm	μm	9.9~10.9	
	Group Index of Refraction（Typical）at 1310 nm	/	1.466	
	Group Index of Refraction（Typical）at 1550 nm	/	1.467	
	Macro-bend loss(1 turn, 16mm radius) at 1550nm	dB	≤ 0.05	
	Macro-bend loss(100 turn, 25mm radius) at 1550nm	dB	≤ 0.05	
	Macro-bend loss(100turns, 30mm radius) at 1550nm	dB	≤ 0.05	
Geometrical Characteristics	Cladding diameter	μm	125 ± 1.0	
	Cladding non-circularity	%	≤ 1	
	Coating diameter	μm	245 ± 7	
	Coating/cladding concentricity error	μm	≤ 12.0	
	Coating non-circularity	%	≤ 6.0	
	Core/cladding concentricity error	μm	≤ 0.5	

Outdoor MLT Steel Armored Cable
Specifications

G.657A2

Category	Items	Unit	Description	
			Before cabled	After cabled
Optical Characteristics	Attenuation at 1310 nm	dB/km	≤ 0.35	≤0.40
	Attenuation at 1383 nm	dB/km	≤ 0.35	≤0.40
	Attenuation at 1550 nm	dB/km	≤ 0.21	≤0.30
	Attenuation at 1625 nm	dB/km	≤ 0.23	≤0.30
	Zero dispersion wavelength	nm	1300~1324	
	Zero dispersion slope	ps/(nm^2·km)	≤ 0.092	
	Cable cut-off wavelength λcc	nm	≤ 1260	
	Mode field diameter (MFD) at 1310 nm	μm	8.4~9.2	
	Mode field diameter (MFD) at 1550 nm	μm	9.3~10.3	
	Group Index of Refraction（Typical）at 1310 nm	/	1.466	
	Group Index of Refraction（Typical）at 1550 nm	/	1.467	
	Macro-bend loss(1 turn, 7.5mm radius) at 1550nm	dB	≤ 0.2	
	Macro-bend loss(1 turn, 10mm radius) at 1550nm	dB	≤ 0.1	
	Macro-bend loss(10turns, 15mm radius) at 1550nm	dB	≤ 0.03	
Geometrical Characteristics	Cladding diameter	μm	125 ± 0.7	
	Cladding non-circularity	%	≤ 0.7	
	Coating diameter	μm	245 ± 5	
	Coating/cladding concentricity error	μm	≤ 12.0	
	Coating non-circularity	%	≤ 6.0	
	Core/cladding concentricity error	μm	≤ 0.5	

Outdoor MLT Steel Armored Cable
Specifications

G.657B3

Category	Items	Unit	Description	
			Before cabled	After cabled
Optical Characteristics	Attenuation at 1310 nm	dB/km	≤ 0.35	≤0.40
	Attenuation at 1383 nm	dB/km	≤ 0.35	≤0.40
	Attenuation at 1550 nm	dB/km	≤ 0.21	≤0.30
	Attenuation at 1625 nm	dB/km	≤ 0.23	≤0.30
	Zero dispersion wavelength	nm	1300~1324	
	Zero dispersion slope	ps/(nm^2·km)	≤ 0.092	
	Cable cut-off wavelength λcc	nm	≤ 1260	
	Mode field diameter (MFD) at 1310 nm	μm	8.4~9.3	
	Mode field diameter (MFD) at 1550 nm	μm	9.3~10.3	
	Group Index of Refraction（Typical）at 1310 nm	/	1.466	
	Group Index of Refraction（Typical）at 1550 nm	/	1.467	
	Macro-bend loss(1 turn, 5mm radius) at 1550nm	dB	≤ 0.15	
	Macro-bend loss(1 turn, 7.5mm radius) at 1550nm	dB	≤ 0.08	
	Macro-bend loss(1 turn, 10mm radius) at 1550nm	dB	≤ 0.03	
Geometrical Characteristics	Cladding diameter	μm	125 ± 0.7	
	Cladding non-circularity	%	≤ 0.7	
	Coating diameter	μm	245 ± 5	
	Coating/cladding concentricity error	μm	≤ 12.0	
	Coating non-circularity	%	≤ 6.0	
	Core/cladding concentricity error	μm	≤ 0.5	

Outdoor MLT Steel Armored Cable
Specifications

OM3

Category	Items	Unit	Description	
			Before cabled	After cabled
Optical Characteristics	Attenuation at 850 nm	dB/km	≤ 2.3	≤3.5
	Attenuation at 1300 nm	dB/km	≤ 0.6	≤ 1.5
	Zero dispersion wavelength	nm	1295～1340	
	Zero dispersion slope at 1295nm~1310nm	/	≤ 0.105	
	Zero dispersion slope at 1300nm~1320nm	/	≤ 0.000375 (1590·λo)	
	Group Index of Refraction（Typical）at 850 nm	/	1.482	
	Group Index of Refraction（Typical）at 1300 nm	/	1.477	
	Numerical Aperture	/	0.200 ± 0.015 NA	
	Overfilled Bandwidth at 850 nm	MHz·km	≥ 1500	
	Overfilled Bandwidth at 1300 nm	MHz·km	≥ 500	
	Effective Modal Bandwidth at 850 nm	MHz·km	≥ 2000	
	Macro-bend loss(100turns, 30mm radius) at 850nm	dB	≤ 0.5	
	Macro-bend loss(100turns, 30mm radius) at 1300nm	dB	≤ 0.5	
Geometrical Characteristics	Core diameter	μm	50 ± 2.5	
	Cladding diameter	μm	125.0 ± 1.0	
	Core non-circularity	%	≤ 5.0	
	Cladding non-circularity	%	≤ 1.0	
	Coating diameter	μm	245 ± 7	
	Coating/cladding concentricity error	μm	≤ 10.0	
	Coating non-circularity	%	≤ 6.0	
	Core/cladding concentricity error	μm	≤ 1.0	

Outdoor MLT Steel Armored Cable
Specifications

OM4

Category	Items	Unit	Description	
			Before cabled	After cabled
Optical Characteristics	Attenuation at 850 nm	dB/km	≤ 2.3	≤3.5
	Attenuation at 1300 nm	dB/km	≤ 0.6	≤ 1.5
	Zero dispersion wavelength	nm	1295～1340	
	Zero dispersion slope at 1295nm~1310nm	/	≤ 0.105	
	Zero dispersion slope at 1300nm~1320nm	/	≤ 0.000375 (1590·λo)	
	Group Index of Refraction（Typical）at 850 nm	/	1.482	
	Group Index of Refraction（Typical）at 1300 nm	/	1.477	
	Numerical Aperture	/	0.200 ± 0.015 NA	
	Overfilled Bandwidth at 850 nm	MHz·km	≥ 3500	
	Overfilled Bandwidth at 1300 nm	MHz·km	≥ 500	
	Effective Modal Bandwidth at 850 nm	MHz·km	≥ 4700	
	Macro-bend loss(100turns, 30mm radius) at 850nm	dB	≤ 0.5	
	Macro-bend loss(100turns, 30mm radius) at 1300nm	dB	≤ 0.5	
Geometrical Characteristics	Core diameter	μm	50 ± 2.5	
	Cladding diameter	μm	125.0 ± 1.0	
	Core non-circularity	%	≤ 5.0	
	Cladding non-circularity	%	≤ 1.0	
	Coating diameter	μm	245 ± 7	
	Coating/cladding concentricity error	μm	≤ 10.0	
	Coating non-circularity	%	≤ 6.0	
	Core/cladding concentricity error	μm	≤ 1.0	

Outdoor MLT Steel Armored Cable
Specifications

Reference Standard

IEC60794-2-20/21
IEC11801
ITU-T G.652D; G.657A1; G.657A2; G.657B3
EIA/TIA
RoHS Compliant

Mechanical and Environmental Characteristics

Items	Descriptions	
Tensile Strength (IEC 60794-1-2-E1)	short-term	1500N(8~48F) or 3000N(96/144F)
	long-term	600N(8~48F) or 1000N(96/144F)
Crush Resistance (IEC 60794-1-2-E3)	short-term	1000N/100mm
	long-term	300N/100mm
Temperature Range (IEC 60794-1-2 F1)	Storage/Operation	-40℃ ~ +70℃
	Installation	+10℃ ~ +60℃
Bending Radius	Static	10D
	Dynamic	20D
Water Penetration	IEC 60794-1-2 F5	
Flammability	IEC 60332-1	
RoHS (2011/65/EU)	Compliant	

Packing
Wooden Drums Protection

Delivery Length
Standard delivery length is 2 km/drum or per customer's requirements.

Outdoor MLT Steel Armored Cable
Ordering Information

Number	Description
R2930062	Outdoor F/O Cable, Multi Loose Tube, SM, 6 (1x6) Fibers, Central Steel Wire + Corrugated Steel, PE
R2930082	Outdoor F/O Cable, Multi Loose Tube, SM, 8 (2x4) Fibers, Central Steel Wire + Corrugated Steel, PE
R2930122	Outdoor F/O Cable, Multi Loose Tube, SM, 12 (2x6) Fibers, Central Steel Wire + Corrugated Steel, PE
R2930242	Outdoor F/O Cable, Multi Loose Tube, SM, 24 (4x6) Fibers, Central Steel Wire + Corrugated Steel, PE
R2930482	Outdoor F/O Cable, Multi Loose Tube, SM, 48 (4x12) Fibers, Central Steel Wire + Corrugated Steel, PE
R2930962	Outdoor F/O Cable, Multi Loose Tube, SM, 96 (8x12) Fibers, Central Steel Wire + Corrugated Steel, PE
R2930152	Outdoor F/O Cable, Multi Loose Tube, SM, 144 (12x12) Fibers, Central Steel Wire + Corrugated Steel, PE
R2933062	Outdoor F/O Cable, Multi Loose Tube, OM3, 6 (1x6) Fibers, Central Steel Wire + Corrugated Steel, PE
R2933082	Outdoor F/O Cable, Multi Loose Tube, OM3, 8 (2x4) Fibers, Central Steel Wire + Corrugated Steel, PE
R2933122	Outdoor F/O Cable, Multi Loose Tube, OM3, 12 (2x6) Fibers, Central Steel Wire + Corrugated Steel, PE
R2933242	Outdoor F/O Cable, Multi Loose Tube, OM3, 24 (4x6) Fibers, Central Steel Wire + Corrugated Steel, PE
R2933482	Outdoor F/O Cable, Multi Loose Tube, OM3, 48 (4x12) Fibers, Central Steel Wire + Corrugated Steel, PE
R2933962	Outdoor F/O Cable, Multi Loose Tube, OM3, 96 (8x12) Fibers, Central Steel Wire + Corrugated Steel, PE
R2933152	Outdoor F/O Cable, Multi Loose Tube, OM3, 144 (12x12) Fibers, Central Steel Wire + Corrugated Steel, PE
R2934062	Outdoor F/O Cable, Multi Loose Tube, OM4, 6 (1x6) Fibers, Central Steel Wire + Corrugated Steel, PE
R2934082	Outdoor F/O Cable, Multi Loose Tube, OM4, 8 (2x4) Fibers, Central Steel Wire + Corrugated Steel, PE
R2934122	Outdoor F/O Cable, Multi Loose Tube, OM4, 12 (2x6) Fibers, Central Steel Wire + Corrugated Steel, PE
R2934242	Outdoor F/O Cable, Multi Loose Tube, OM4, 24 (4x6) Fibers, Central Steel Wire + Corrugated Steel, PE
R2934482	Outdoor F/O Cable, Multi Loose Tube, OM4, 48 (4x12) Fibers, Central Steel Wire + Corrugated Steel, PE
R2934962	Outdoor F/O Cable, Multi Loose Tube, OM4, 96 (8x12) Fibers, Central Steel Wire + Corrugated Steel, PE
R2934152	Outdoor F/O Cable, Multi Loose Tube, OM4, 144 (12x12) Fibers, Central Steel Wire + Corrugated Steel, PE