

PRODUCT DATA SHEET

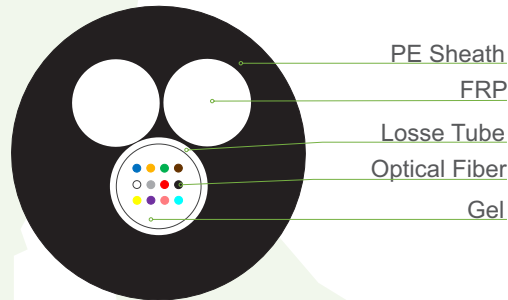
Fiber Optic Cable All Dielectric Self-Supporting Unitube

1 Reference

The cable offered by Nitrotel are designed, manufactured and tested according to the standards as follows:

ITU-T G.652	Characteristics of a single-mode optical fiber
IEC 60794-1-1	Optical fiber cables-part 1-1: Generic specification-General
IEC 60794-1-2	Optical fiber cables-part 1-2: Generic specification-Basic optical cable test procedure
IEC 60794-3	Optical fiber cables-part 3: Sectional specification-Outdoor cables
IEC 60794-4-20	Aerial optical cables along electrical power lines – Family specification for ADSS (All Dielectric Self Supported) optical

2. Cable Cross-section



3. Cable Identification

Fiber color code

1	2	3	4	5	6	7	8	9	10	11	12
Blue	Orange	Green	Brown	Gray	White	Red	Black	Yellow	Violet	Pink	Aqua

Fiber color in each tube starts from No. 1 Blue.

3.2 Loose tube (LT) & filler rod (FR) color code

Fiber count	Element											
	1	2	3	4	5	6 ^{nd.}	7	8	9	10	11	12
1~12	LT											

* "LT" means "Loose Tube";
** "FR" means "Filler Rod".



4. Cable Assembly & Dimensions

Item	Contents	Value	
		1~12	
Loose tube	Number	1	
	Outer diameter (mm)	1.8	2.0
	Thickness (mm)	0.3	
	Material	PBT	
	Water blocking	Tube filling compound	
Strength member	Material	FRP	
	Diameter (mm)	1.8	2.0
	Number	2	
Water blocking	Material	Water blocking yarn	
Sheath	Material	MDPE	
	Color	Black	
	Thickness (mm)	1.4	
Rip cord	Number	1	
Cable diameter (mm) Approx.		6.7±0.2	7.1±0.2
Cable weight (kg/km) Approx.		40	45
Span(m)		50	80
		80	100

Item	Contents	Value	
		24	
Loose tube	Number	1	
	Outer diameter (mm)	2.5	
	Thickness (mm)	0.3	
	Material	PBT	
	Water blocking	Tube filling compound	
Strength member	Material	FRP	
	Diameter (mm)	1.8	2.0
	Number	2	
Water blocking	Material	Water blocking yarn	
Sheath	Material	MDPE	
	Color	Black	
	Thickness (mm)	1.4	
Rip cord	Number	1	
Cable diameter (mm) Approx.		7.3±0.2	7.7±0.2
Cable weight (kg/km) Approx.		45	50
Span(m)		50	80
		80	100



5 OPTICAL FIBER

5.1 Single Mode Fiber

ITEMS	UNITS	SPECIFICATION	
		G652D	G657A
Fiber type		G652D	G657A
Attenuation	dB/km	1310 nm ≤ 0.36 1550 nm ≤ 0.22	
Chromatic Dispersion	ps/nm.km	1310 nm ≤ 3.5 1550 nm ≤ 18 1625 nm ≤ 22	
Zero Dispersion Slope	ps/nm ² .km	≤ 0.092	
Zero Dispersion Wavelength	nm	1300 ~ 1324	
Cut-off Wavelength (lcc)	nm	≤ 1260	
Attenuation vs. Bending (60mm x100turns)	dB	(30 mm radius, 100 rings) ≤ 0.1 @ 1625 nm	(10 mm radius, 1 ring) ≤ 1.5 @ 1625 nm
Mode Field Diameter	mm	9.2 ± 0.4 at 1310 nm	9.2 ± 0.4 at 1310 nm
Core-Clad Concentricity	mm	≤ 0.5	≤ 0.5
Cladding Diameter	mm	125 ± 1	125 ± 1
Cladding Non-circularity	%	≤ 0.8	≤ 0.8
Coating Diameter	mm	245 ± 5	245 ± 5
Proof Test	Gpa	≥ 0.69	≥ 0.69

5.2 Multi Mode Fiber

ITEMS	UNITS	SPECIFICATION					
		62.5/125	50/125	OM3-150	OM3-300	OM4-550	
Fiber Core Diameter	µm	62.5 ± 2.5	50.0 ± 2.5	50.0 ± 2.5			
Fiber Core Non-circularity	%	≤ 6.0	≤ 6.0	≤ 6.0			
Cladding Diameter	µm	125.0 ± 1.0	125.0 ± 1.0	125.0 ± 1.0			
Cladding Non-circularity	%	≤ 2.0	≤ 2.0	≤ 2.0			
Coating Diameter	µm	245 ± 10	245 ± 10	245 ± 10			
Coat-Clad Concentricity	µm	≤ 12.0	≤ 12.0	≤ 12.0			
Coating Non-circularity	%	≤ 8.0	≤ 8.0	≤ 8.0			
Core-Clad Concentricity	µm	≤ 1.5	≤ 1.5	≤ 1.5			
Attenuation	850nm	dB/km	3.0	3.0	3.0		
	1300nm	dB/km	1.5	1.5	1.5		
OFL	850nm	MHz. km	≥ 160	≥ 200	≥ 700	≥ 1500	≥ 3500
	1300nm	MHz. km	≥ 300	≥ 400	≥ 500	≥ 500	≥ 500
The biggest theory numerical aperture	/	0.275 ± 0.015	0.200 ± 0.015	0.200 ± 0.015			

6. Performance of Optical Fiber Cable

6.1 Cable bending radius: 10 x cable diameter (static)
20 x cable diameter (dynamic)

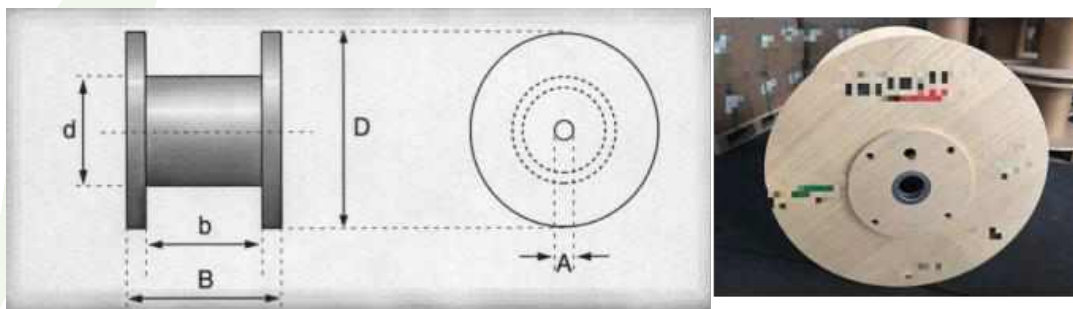
6.2 Application temperature range

Operating temperature range -40°C to +60°C
Storage / Transport temperature range -40°C to +60°C
Installation temperature range -10°C to +50°C

S/N	Item	Test Method	Acceptance Condition
1	Tensile Strength IEC 794 -1-E1	- Load: 800N(50/80M) 1000N(100M) Length of cable under load: 50 m Load time: ≥1min.	Loss change ≤ 0.1 dB @1550 nm No fiber break and no sheath damage
2	Crush Test IEC 794 -1-E3	- Load: 1000N/100 mm - Load time: ≥1min.	Loss change ≤ 0.1 dB @1550 nm No Loss change No fiber break and no sheath damage
3	Impact Resistance IEC 794 1-E4	Points of impact: 5 -Times of per point: 1 Impact energy:4.5N.m Radius of hammer head: 12.5mm Impact rate: 2 sec/cycle	- Loss change ≤ 0.1 dB @1550 nm -No damage to outer jacket and inner elements.
4	Repeated Bending IEC 794 1-E6	Bending radius: 20 x cable diameter Load: 150 N Flexing rate: 2 sec/cycle No. of cycle:30	- Loss change ≤ 0.1 dB @1550 nm -No damage to outer jacket and inner elements.
5	Torsion IEC 794 -1-E7	Length: 1 m Load: 150 N Twist rate: 1 min/cycle Twist angle: ±180° No. of cycle: 10	- Loss change ≤ 0.1 dB @1550 nm -No damage to outer jacket and inner elements.
6	Water Penetration Test IEC 794 -1-F5B	Height of water: 1 m Sample length: 3 m Test time: 24 hours	- No water shall have leaked from the opposite end of cable.
7	Temperature Cycling Test IEC 794 -1-F1	Temperature step: +20o C→ -40oC→+60oC →+20oC Time per each step: 12 hours Number of cycle: 2	Loss change ≤ 0.1 dB/km@1550 nm No fiber break and no sheath damage.
8	Compound Flow IEC 794 -1-E14	Sample length: 30 cm Temp: 70°C ± 2°C Time: 24 hours	- No compound flow

7. Packing

- 7.1 Each single cable length been wound on an iron stand-wooden composite or pure wooden drum.
- 7.2 Standard drum length is 3000m with ±2%.
- 7.3 Covered by plastic buffer sheet.
- 7.4 Sealed by strong wooden battens.
- 7.5 At least 3m of cable inner end should be reserved for testing.



Note: The value "D" contain the seal dimension.

Cable Type	Drum Length (m)	Drum Dimensions			
		D (mm)	d (mm)	B(mm)	b (mm)
NT-ASU-SMxxM-YY	3,000	850	320	550	500

