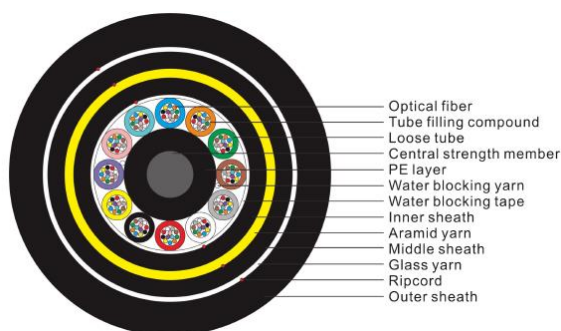


Reference

The cable offered by PROSE 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 cables

Cable Cross-section



Cable Identification

1. Fiber color code

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

2. Loose tube (LT) & filler rod (FR) color code

Fiber count	Element no.											
	1	2	3	4	5	6	7	8	9	10	11	12
12	LT	FR	FR	FR	FR	FR	FR					
24	LT	LT	FR	FR	FR	FR	FR					
48	LT	LT	LT	LT	FR	FR	FR					
144	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT	LT

* "LT" means "Loose Tube";

** "FR" means "Filler Rod".

Cable Assembly & Dimensions

Item	Contents	Value	
		12/24/48	144
Loose tube	Number	1/2/4	12
	Outer diameter (mm)	2.0±0.1	1.8±0.1
	Thickness(mm)	0.3±0.05	
	Material	PBT	
	Water blocking	Tube filling compound	
Filler	Number	6/5/3	0
	Material	PP	
Max. Fiber counts per tube	G652D	12	
Central strength member	Material	FRP	
	Diameter (mm)	2.8±0.1	
	PE layer diameter (mm)	-	5.5±0.2
Water blocking	Material	Water blocking yarn & tape	
Ripcord	Number	2	
Inner Sheath	Material	HDPE	
	Color	Black	
	Thickness (mm)	Nominal 1.0, Minimum 0.8	
Additional Strength Member	Material	Aramid yarn	
Middle Sheath	Material	HDPE	
	Color	Black	
	Thickness (mm)	Nominal 1.0, Minimum 0.8	
Anti-rodent Strength Member	Material	Glass yarn	
Outer Sheath	Material	HDPE	
	Color	Black	
	Thickness(mm)	Nominal 2.0, Minimum 1.8	
Cable diameter(mm) Approx.		16.8±0.5	18.8±0.5
Cable weight(kg/km) Approx.		315±15%	415±15%
Maximum allowable tension (kN)		10.0	
Span(M)		300	

Performance of Cabled Optical Fiber

The performance of cabled optical fiber (ITU-T Rec. G.652D)

Item		Specification
Fiber type		Single mode
Fiber material		Doped silica
Attenuation coefficient	@ 1310 nm	≤ 0.35 dB/km
	@ 1550 nm	≤ 0.21 dB/km
Cable cut-off wavelength		≤ 1260 nm
Zero-dispersion wavelength		1300 ~ 1324 nm
Zero-dispersion slope		≤ 0.092 ps/(nm ² .km)
Chromatic dispersion	@ 1288 ~ 1339 nm	≤3.5 ps/(nm. km)
	@ 1550 nm	≤18 ps/(nm. km)
	@ 1625 nm	≤22 ps/(nm. km)
PMD		≤0.2 ps/km ^{1/2}
Mode field diameter	@ 1310 nm	9.2 ± 0.4 μm
	@ 1550 nm	10.4 ± 0.5 μm

Core / Clad concentricity error	$\leq 0.5 \mu\text{m}$
Coating/cladding concentricity error	$\leq 12 \mu\text{m}$
Cladding diameter	$125.0 \pm 0.7 \mu\text{m}$
Cladding non-circularity	$\leq 0.7 \%$
Primary coating diameter	$245 \pm 10 \mu\text{m}$

Performance of Optical Fiber Cable

- Cable bending radius: 10 x cable diameter (static)
20 x cable diameter (dynamic)
- Application temperature range
 - Operating temperature range : -40°C to +70°C
 - Storage / Transport temperature range : -40°C to +70°C
 - Installation temperature range : -20°C to +60
- Mechanical & environmental performance test

S/N	Item	Test Method	Acceptance Condition
1	Tensile Strength IEC 794-1-21-E1	- Load: MAT - Length of cable under load: 50 m - Load time: 1hour	- Loss change $\leq 0.05 \text{ dB/km@1550 nm}$ - Fiber strain $\leq 0.33 \%$ - No fiber break and no sheath damage.
2	Crush Test IEC 794-1-21-E3	- Load: 2200N/100mm for short term - Load: 1000N/100mm for long term - Load time: 1min	- Loss change $\leq 0.05 \text{ dB/km@1550 nm}$ - No fiber break and no sheath damage.
3	Impact Resistance IEC 794-1-21-E4	- Points of impact: 3 - Impact number: 2 - Impact energy: 6.5J - Radius of hammer head: 12.5mm	- Loss change $\leq 0.05 \text{ dB/km@1550 nm}$ - No fiber break and no sheath damage.
4	Repeated Bending IEC 794-1-21-E6	- Bending radius: 20 x cable diameter - Load: 150N - Flexing rate: 3 sec/cycle - No. of cycle: 25	- Loss change $\leq 0.05 \text{ dB/km@1550 nm}$ - No fiber break and no sheath damage.
5	Torsion IEC 794-1-21-E7	- Length: 2m - Load: 150N - Twist rate: 1 min/cycle - Twist angle: $\pm 180^\circ$ - No. of cycle: 10	- Loss change $\leq 0.05 \text{ dB/km@1550 nm}$ - No fiber break and no sheath damage.
6	Bend IEC 794-1-21-E11B	- Mandrel diameter: 20*D - No. of Turns: 4 - No. of cycle: 3	- Loss change $\leq 0.05 \text{ dB/km@1550 nm}$ - No fiber break and no sheath damage.
7	Water Penetration Test IEC 794-1-22-F5B	- Height of water: 1 m - Sample length: 1 m - Test time: 1 hours	- No water shall have leaked from the opposite end of cable.
8	Temperature Cycling Test	- Temperature step:	- Loss change $\leq 0.05 \text{ dB/km@1550 nm}$

	IEC 794-1-22-F1	+20°C → -40°C → +85°C → +20°C Transition from 0°C to -40°C: 2 hours; duration at -40°C: 8 hours; Transition from -40°C to +85 °C: 4 hours; duration at +85°C: 8 hours; Transition from +85°C to 0°C: 2 hours - Number of cycle: 5	- No fiber break and no sheath damage.
9	Compound Flow IEC 794-1-21-E14	- Sample length: 30 cm - Temp: 70°C ± 2°C - Time: 24 hours	- No compound flow

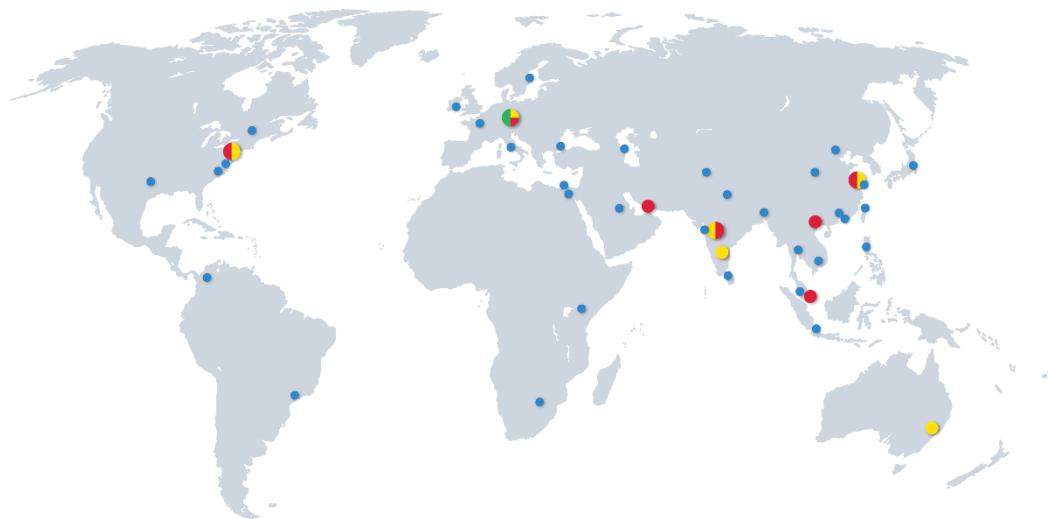
Ordering Information

Category	Cable Structure	Fiber Type	Outer Sheath Material	Fiber Count
FC: Fiber Cable	12: ADSS Cable	GD: G652D M2: OM2 M3: OM3 M4: OM4 M5: OM5	3: PE	004:4F 008:8F 012:12F 016:16F 024:24F

Example:

Order Number	Fiber count	Description
FC12-GD3006	6	Cable, Outdoor, ADSS, Heavy Armored, Stranded, 6F, SM G652D, PE
FC12-M33012	12	Cable, Outdoor, ADSS, Heavy Armored, Stranded, 12F, MM OM3, PE
FC12-M43024	24	Cable, Outdoor, ADSS, Heavy Armored, Stranded, 24F, MM OM4, PE

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