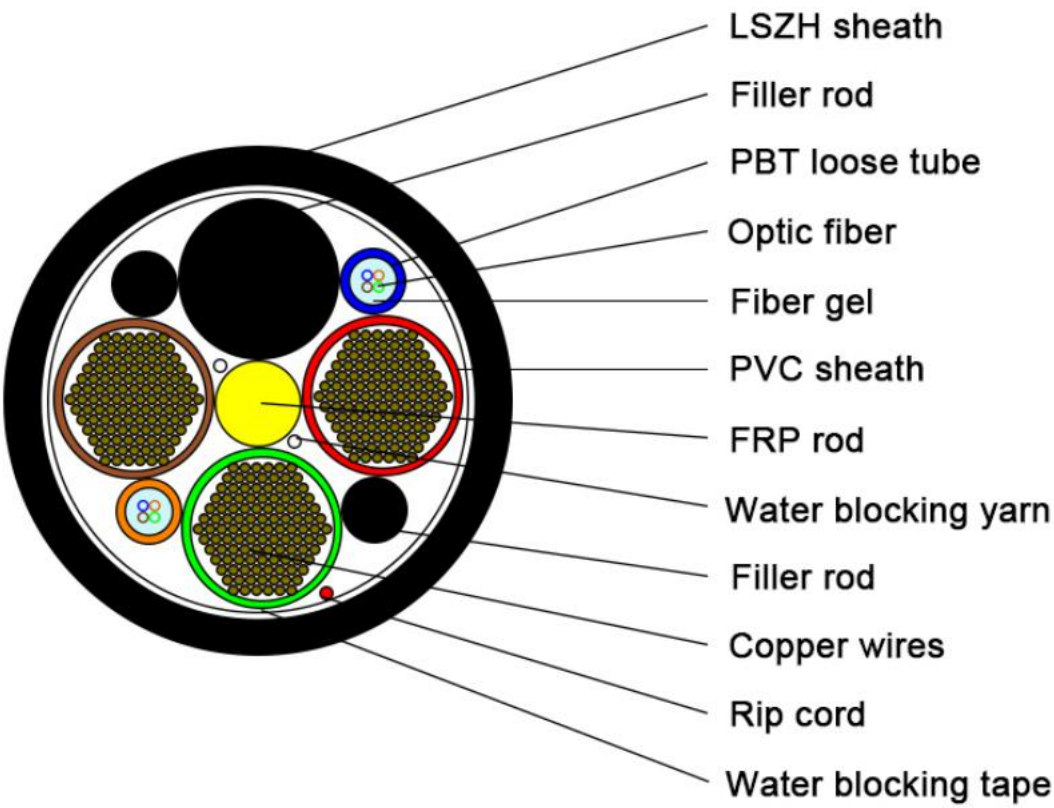
OPTICAL FIBER CABLE
WITH 8 CORES & 3x2.5mm2 Multiple strands of twisted copper wire TECHNICAL DATA SHEET

-----Single Mode Optical Fiber Cable

CSM FRP 2.0mm



1. Structure description

Non-Metallic central strength member, loose tube stranded, gel filling,multiple strands of twisted copper wire with PV sheath, polyethylene sheath outdoor aerial or duct optical fiber cable for communication purpose.

Technical characteristics:

- Selected high quality optical fiber ensure the optical fiber cable have excellent transmission properties.
- The unique fiber excess length control method provides the cable with excellent mechanical and environmental properties.
- Very strict material and manufacturing control guarantees the cable can work stably for more than 20 years.
- Total cross-section water-resistant structure makes cable have excellent properties of moisture resistance.
- Special jelly filled in the loose tube provides the fibers with critical protection.
- The out LSZH sheath provides good anti-UV radiation performance.

2. Cable Specification

2.1 Sheath marking

OFC	8 B1.3 (G.652D)	2021	XXXXm
	: Manufacturer's brand		
2021	: Manufacture year		
OFC	: Cable type		
8 B1.3 (G.652D)	: 8 cores single-mode optical fiber (ITU-T Rec. G.652D)		
XXXXm	: Mark of meters		
**The marking is printed every 1 meter;*			
***"G.652D" means ITU-T Rec. Low Water Peak (LWP) G.652 single mode optical fiber.*			

Also can according to client cable marking.

2.2 The color of marking is white,

2.3 An occasional unclear of length marking is permitted if both of the neighboring markings are clear;

2.4 The both cable ends are sealed with heat shrinkable end caps to prevent water ingress.

2.5 Fiber color and Binder color code: according to EIA/TIA 598B

No	1	2	3	4	5	6	7	8	9	10	11	12
Fiber Color	Blue	Orange	Green	Brown	Slate	White	Red	Black	yellow	violet	Pink	Aqua

*According to the customer required color scheme too.

2.6 Loose tube color scheme

2.6.1 Color codes for Loose Tube (LT) & Filler Rod (FR)

Fiber number	Element no.											
	1	2	3	4	5	6	7	8	9	10	11	12
4	LT	FR	FR	FR	FR	---	---	---	---	---	---	---
8	LT	LT	FRP	CW	CW	CW	FR	FR	FR	---	---	---

3. Fiber Properties

-----The properties of single mode optical fiber (ITU-T Rec. G.652D)

Category	Description		Specifications
Optical Specifications	Attenuation	@1310nm	≤0.35dB/km
		@1383nm	≤0.30dB/km
		@1490nm	≤0.24dB/km
		@1550	≤0.20dB/km
		@1625	≤0.23dB/km
	Attenuation Non-uniformity	@1310nm,1550nm	≤0.05dB
	Point Discontinuity	@1310nm,1550nm	≤0.05dB
	Attenuation vs Wavelength	@1285nm-1330nm	≤0.03dB/km
		@1525nm-1575nm	≤0.02dB/km
	Zero Dispersion Wavelength		1310nm-1324nm
	Zero Dispersion Slope		≤0.092ps/(nm^2·km)
	Dispersion	@1550nm	≤18ps/(nm·km)
		@1625nm	≤ 22ps/(nm·km)
	PMD Link Design Value (m=20 Q=0.01%)		≤0.06ps√km
	Maximum Individual Fiber		≤0.1ps√km
	Cable Cut-off wavelength(λ cc)		≤1260nm
	Macro Bending Loss (1turn;Φ32mm)	@1550	≤0.30dB
	Macro Bending Loss (100turns;Φ50mm)	@1310nm	≤0.30dB
		@1550nm	≤0.30dB
	Macro Bending Loss (100turns;Φ60mm)	@1625nm	≤0.30dB
	Mode Field Diameter	@1310nm	9.2±0.4μm
		@1550nm	10.4±0.5μm
Dimensional Specifications	Fiber Curl Radius		≥4.0m
	Cladding Diameter		125±0.7μm
	Core / Clad Concentricity		≤0.5μm
	Cladding Non-circularity		≤0.7%
	Coating Diameter		242±5μm
	Coating / Cladding Concentricity		≤12μm
Mechanical Specifications	Proof Test		≥100kspi(0.7GPa)
	Fatigue Resistance Parameter (N_d)		≥20

4 .Cable structure and parameter

Fiber count	8 core
Fiber type	G.652D
PBT loose tube no.	2Tube x 4fibers
PBT diameter	1.6mm
Filler rod no.	3
Multiple strands of twisted copper wire no.	3x2.5mm^2
Central strength member FRP diameter	2.0mm
Water blocking material	Water blocking tape&yarns
Sheath material	LSZH
Ripcord 1 core	Under jacket
Sheath thickness	1.8mm
Cable diameter	13.2mm±0.4mm.
Cable net weight	240kg/km
Max tension(N)	4000N fiber strain 0.6%
Max crush(N)	4000N/100mm

* The nominal sheath thickness may vary by ±0.2mm.
** The nominal outer diameter and height may vary by ±0.4mm.
***LT means: loose tube. FR means: Filler rod.

5. Main mechanical & environmental characteristics test

NO	ITEM	TEST METHOD	ACCEPTANCE REQUIREMENTS
1	Tensile Strength IEC 794-1-E1	- Load: 4000 N - Length of cable under load: 50m	- Loss change 0.1 dB @1550 nm - No fiber break and no sheath damage.
2	Crush Test IEC 60794-1-E3	- Load: 1000 N/100mm - Load time: ≥1min	- Loss change 0.1 dB @1550 nm - No fiber break and no sheath damage.
3	Impact Test IEC 60794-1-E4	- Points of impact: 5 - Times of per point: 5 - Impact energy: 4.5Nm - Radius of hammer head: 12.5mm - Impact rate: 2sec/cycle	- Loss change 0.1 dB @1550 nm - No fiber break and no sheath damage.
4	Repeated Bending IEC 60794-1-E6	- Bending Dia.: 20 x OD - Load: 250N - Flexing rate: 3sec/cycle - No. of cycle: 30	- Loss change 0.1 dB @1550 nm - No fiber break and no sheath damage.
5	Torsion IEC 60794-1-E7	- Length: 1m - Load: 150N - Twist rate: 1min/cycle - Twist angle: ±90° - No. of cycle: 10	- Loss change 0.1 dB @1550 nm - No fiber break and no sheath damage.
6	Water Penetration IEC 60794-1-F5B	- Height of water: 1m - Sample length: 3 m - Time: 24 hour	- No water shall have leaked from the opposite end of cable
7	Temperature Cycling IEC 60794-1-F1	- Temperature step: $+20^{O}C \rightarrow -20^{O}C \rightarrow +70^{O}C \rightarrow +20^{O}C$ - Time per each step: 24 hrs - Number of cycle: 2	- Loss change 0.1 dB @1550 nm - No fiber break and no sheath damage.
8	Compound Flow IEC 60794-1-E14	- Sample length: 30 cm - Temp: 70°C2°C - Time: 24 hours	- No compound flow
9	Sheath High Voltage Test	- On line test - 9t KV (t-sheath thickness)	- No sheath breakdown

6. Packing and Marking

6.1 Packing
5.1.1 Each single length of cable shall be reeled on **Wooden Drum Drum**
6.1.2 Covered by plastic buffer sheet.
6.1.3 Sealed by strong wooden battens.
6.1.4 At least 1 m of inside end of cable will be reserved for testing.
6.1.5 Drum length
6.1.5.1 Standard drum length is **2000m**;**4000m**
6.1.5.2 Single length not less than 96% of standard length per drum shall be permitted for quantity not exceeding 10% of the total supply;
6.1.5.3 Total quantity is at least the ordered quantity.

6.2. Drum Marking

6.2.1 Cable drum

- Manufacturer brand;
- Roll-direction arrow;
- Cable outer end position indicating arrow;
- The word "**FIBER OPTICAL CABLE**";

- Caution plate indicating the correct method for loading, unloading and convey the cable;
- *Other customer information such as contract no., project no., and delivery destination. (if needed)*

6.2.2 Marking plate

- Product name;
- Cable type and size;
- Drum length;
- Gross / Net weight in kilograms;
- Drum number in meters;
- Manufacturer's name;
- Manufacturing year and month;
- *Project number, contract number or purchasing order number (if needed).*

6.3 Cable identification documents

- Test report.

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