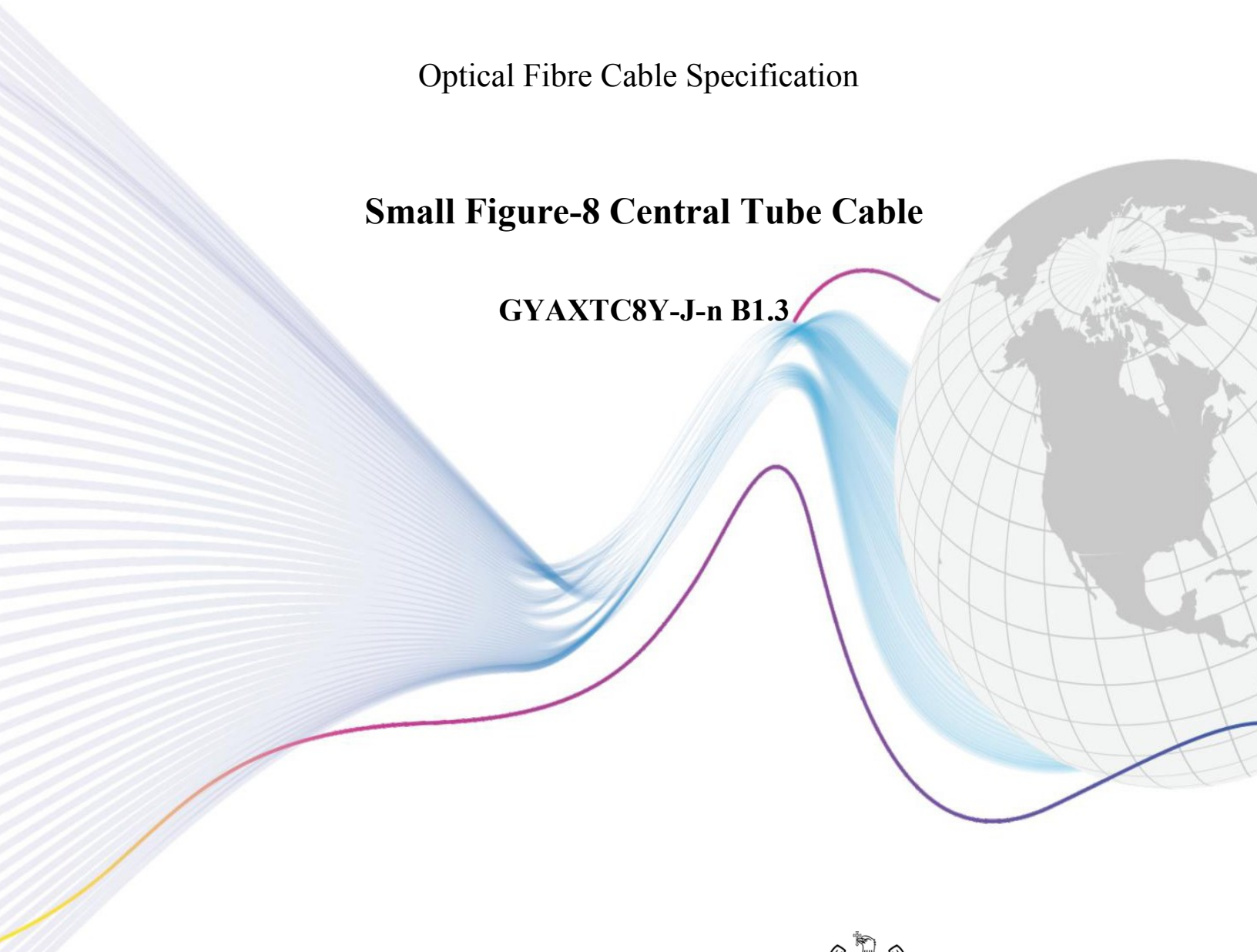
Optical Fibre Cable Specification

Small Figure-8 Central Tube Cable

GYAXTC8Y-J-n B1.3



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1. General

This specification covers the design requirements and performance standard for the supply of optical fibre cable in the industry. It also includes premium designed cable with optical, mechanical and geometrical characteristics.

Cable type	Application
GYAXTC8Y-J-nB1.3	Self-support aerial installation

n represent the number of fibres in the cable.

1.1 Cable Description

Our cable has excellent optical transmission and physical performance, to meet customer requirements.

1.2 Quality

Our ensures a stable quality control system for our cable products through several programs including ISO 9001, ISO 14001 and OHS.

1.3 Reliability

Initial and periodic qualification tests for raw material and cable product are performed to assure the cable's performance and durability in the field environment.

1.4 Reference

ITU-T G.652	Characteristics of a single-mode optical fibre
IEC 60794-1-1	Optical fibre cables-part 1-1: Generic specification-General
IEC 60794-1-2	Optical fibre cables-part 1-2: Generic specification-Basic optical cable test procedure
IEC 60794-3	Optical fibre cables-part 3: Sectional specification-Outdoor cables
IEC 60794-3-10	Optical fibre cables-part 3-10: Outdoor cables-Family specification for duct and direct buried optical communication cables
IEC 60794-3-11	Optical fibre cables-Part 3-11: Outdoor cables-Detailed specification for duct and directly buried single-mode optical fibre telecommunication cables

1.5 Life Time

Optical fibre cables supplied in compliance with this specifications is capable to withstand the typical service condition for a period of twenty-five (25) years without detriment to the operation characteristics of the cable.

2. Optical Fibre In Cable(ITU-T G.652D

Parameter	Specification
MFD (1310nm)	9.1±0.4um
MFD (1550nm)	10.4±0.5um
Cladding diameter	125±1.0 um
Fiber diameter	245±7um, with UV coating, and colored to : 250±15um
Core/cladding concentricity error	≤ 0.6um
Coating/cladding concentricity error	≤ 12.0um
Cladding non circularity	≤ 1.0%
Cut off wavelength	λcc ≤1260nm
Attenuation coefficient	1310nm: 0.35dB/km max after cabling 1550nm: 0.21dB/km max after cabling
Bending-loss performance of optical fiber @1310nm&1550nm	≤0.05dB (100 turns around a mandrel of 50mm diameter)
Polarization mode dispersion maximum individual fibre	≤0.1ps/√km
Polarization mode dispersion link value	≤0.06ps/√km
Zero-dispersion wavelength	1312±12nm
Zero-dispersion slope	≤0.091ps/nm^2·km

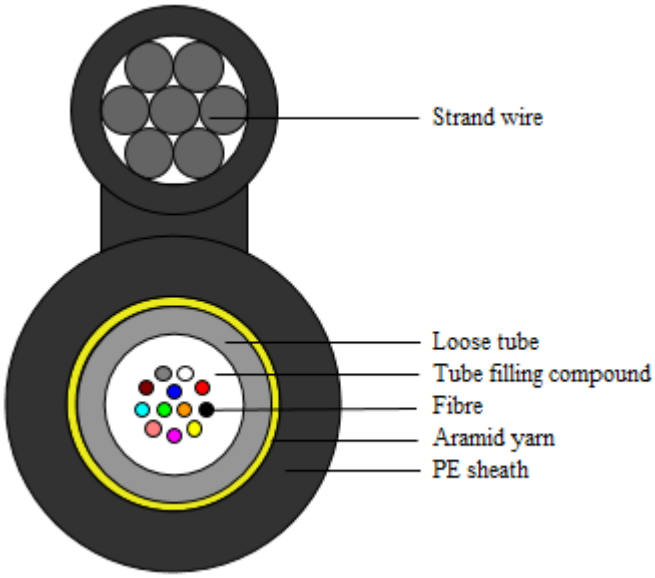
3. Optical Cable

3.1 General Design

Fibers are housed in tubes that are made of high-modulus plastic and filled with waterproof compounds.
Galvanized steel wire is applied as Messenger.
Aramid yarn as central strength member
Figure 8 type PE sheath are applied as outer sheath

3.2 Construction

3.2.1 Cross Section of Cable



GYAXTC8Y-J-12B1.3

3.2.2 Dimensions and Descriptions of Cable Constructions

The standard structure of GYAXTC8Y-J cable is shown in the following table, other structure and fibre count are also available according to customer requirements.

Items		Descriptions	
Fiber	Fiber type	ITU. G.652.D	
	Fiber counts	12	**24**
Messenger	Material	Galvanized steel wire	
	Diameter	nominal：7*0.8mm	nominal：7*0.6mm
Loose tube	Material	PBT	
	Diameter(O.D)	nominal: 3.0mm	nominal: 3.2mm
Strength number	Material	Aramid yarn	
Outer sheath	Material	PE	
	Thickness	nominal: 0.8mm	
Cable diameter approx.		4.8*10.2mm	5.0*9.8mm
Cable weight approx.		60kg/km	50kg/km

3.2.3 Main Mechanical and Environmental Performance of Cable

Item	**Tensile performance(N)**		**Crush(N/100mm)**	
	Short term	Long term	Short term	Long term
12	2000	1000	2000	600
24	**1500**	**750**	**2000**	**600**

Operation temperature: -40℃～+70℃

3.2.4 Color Code of the Fibre and Loose tube

Each fibre can be identifiable throughout the length of the cable in accordance with the following color sequence.

Fibre Color Code	1	2	3	4	5	6
	Red	Yellow	Green	Blue	Violet	Brown
	7	8	9	10	11	12
	Black	Orange	Pink	Grey	Aqua	White
	13	14	15	16	17	18
	Red with black ring	Yellow with black ring	Green with black ring	Blue with black ring	Violet with black ring	Brown with black ring
	19	20	21	22	23	24
	Natural	Orange with black ring	Pink with black ring	Grey with black ring	Aqua with black ring	White with black ring

Loose tube will be identification in Natural.

3.3 Mechanical, Electrical and Environmental Test Characteristics

The finished cables can be subjected to the following mechanical, electrical and environmental conditions.

Item	Test Method	Requirements
Tension	**IEC 60794-1-2-E1** Load: According to 3.2.3 Sample length: Not less than 50m. Duration time: 1min.	Additional attenuation after test: ≤0.1dB No damage to outer jacket and inner elements
Crush	**IEC 60794-1-2-E3** Load: According to 3.2.3 Duration of load: 1min	Additional attenuation after test: ≤0.1dB No damage to outer jacket and inner elements
Impact	**IEC 60794-1-2-E4** Radius: 300mm Impact energy: 3J Impact number: 1 Impact points: 3	Additional attenuation: ≤0.1dB No damage to outer jacket and inner elements
Bend	**IEC 60794-1-2-E11A** Mandrel radius: 10D Turns:10 Cycles:5	Additional attenuation: ≤0.1dB No damage to outer jacket and inner elements
Repeated bending	**IEC 60794-1-2-E6** Bending radius: 20D Cycles: 30 Load: 150N	Additional attenuation: ≤0.1dB No damage to outer jacket and inner elements
Torsion	**IEC 60794-1-2-E7** Cycles:10 Length under test: 1m Turns: ±90° Load:150N	Additional attenuation: ≤0.1dB No damage to outer jacket and inner elements

Temperature cycling	**IEC 60794-1-2-F1** Sample length: at least 1000m Temperature range: +20℃→-40℃→+70℃→-40℃→+70℃→+20℃ Cycles:2 Temperature cycling test dwell time: 12 hours	The change in attenuation coefficient shall be less than 0.1 dB/km at 1310 and 1550nm.
Water Penetration	**IEC 60794-1-2-F5B** Time : 24 hours Sample length : 3m Water height : 1m	No water leakage, except the part of the messenger wire.
Other parameters	According to **IEC 60794 ,**	

4. Packaging and Drum

4.1 Cable Sheath Marking

Unless otherwise specified, the cable sheath marking shall be as follows:
- Color: white
- Contents: Vendor, the year of manufacture, the type of cable, cable number, length marking
- Interval: 1±0.2% m

Outer sheath marking legend can be changed according to user's requests.

4.2 Reel Length

Standard reel length: 2/3km/reel, other length is also available.

4.3 Cable Drum

The cables are packed in fumigated wooden drums.

4.4 Cable Packing

Both cable ends are protected against water penetration and firmly secured to the drum, so the cable cannot move and the turns cannot slide when it is moved, handled or laid. The inner end has around 3 meters of accessible length to perform reception tests.