

All Dielectric Self-supporting Single Sheath Aerial Cable (ADSS-Single Sheath)



In YOFC-KHOMAX ADSS cable, single-mode/multimode fibres are positioned in the loose tubes, which are made of high modulus plastic materials, while the loose tubes strand together around non-metallic central strength member(FRP) into a compact and circular cable core. The loose tubes are filled with filling compound, while water-blocking materials are distributed into interstices of the cable core. The PE inner sheath is extruded over the cable core with aramid yarns outside. Then, the cable is completed with a PE/AT outer sheath. The actual status of overhead power lines is taken into full consideration when ADSS cable is being designed. For overhead power lines under , PE outer sheath is applied. For power lines equal to or over , AT outer sheath is applied. The careful design of aramid yarn quantity and stranding process can satisfy the demand on various spans.

Features and Applications

- High tensile strength
- All dielectric structure and semi-dry core design
- Small diameter and light weight
- Self-supporting aerial installation



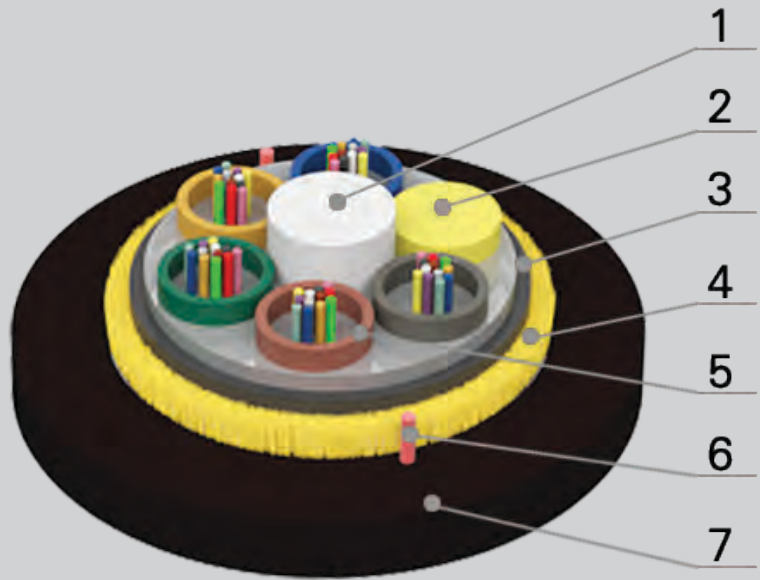
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Description

1. Central Strength Member(CSM):glass fibre reinforced plastic rod (FRP),coated with polyethylene when needed.
2. Filler Elements:thermoplastic rods.
3. Longitudinal Water Blocking Material:water blocking tape.
4. Peripheral Strength Member:aramid yarn.
5. Loose Tube:thermoplastic material,containing optical fibres and filled with gel.
6. Ripcord
7. Outer Sheath:black polyethylene.





Technical Data

Item	Contents	Value					
		Fibre Count					
		0-24	48	72	96	144	288
Loose tube	No. of tubes*fibres per tube	4*6	4*12	6*12	8*12	12*12	24*12
	Outer diameter (mm)	2.1	2.5				
Central strength member	Material	FRP					
	Diameter (mm)	2.25	2.0	2.6	2.8	3.7	2.6
	PE layer diameter (mm)	-	-	-	4.2	7.4	4.8
Water blocking material	Material	Water blocking tape					
Peripheral strength member	Material	Aramid yarn					
Sheath	Thickness (mm)	Nominal:1.8					
Cable diameter(mm) Approx.		11.0	11.2	12.2	13.9	17.1	20.2
Cable weight(kg/km) Approx.		95	115	130	160	235	290
Operating temperature range(°C)		-40~+70					
Max. span (m)		250	250	240	200	180	140
Climate condition		Max. wind speed: 25m/s , No ice					
Crush resistance short/long term (N/100mm)		1000/300					

* The colour arrangement of fibre and tube is specified in the color identification table.

* Specifications in the table are based on the condition that there is no height difference between two suspension points and the installation sag is 1%.

* Other structure and fibre count are also available according to customer requirements.

* Cable diameter and weight in this table is typical value, which will fluctuate according to different designs

* The span needs to be recalculated due to other climate conditions according to the installation area.

Main Mechanical and Environmental Performances

Items	Test Standard	Specified Value	Requirements
Tension	IEC 60794-1-2-E1	See Technical data	Additional attenuation: ≤0.1dB after test
Crush	IEC 60794-1-2-E3	See Technical data	Additional attenuation: ≤0.1dB after test
Impact	IEC 60794-1-2-E4	R=300mm, 20Nm, one in 3 different places	Additional attenuation: ≤0.1dB after test
Repeated Bending	IEC 60794-1-2-E6	R=20*D	Additional attenuation: ≤0.1dB after test
Water Penetration	IEC 60794-1-2-F5	Sample length=3m, Water height=1m, 24 hours	No water leakage
Temperature Cycling	IEC 60794-1-2-F1	-40°C~+70°C	Attenuation change: ≤0.05dB/km after test

* All optical measurements at 1550nm.

Packing and Reel Length

- Standard wooden drum with protection
- Standard reel length: 2/3 km/reel, other length is also available.

Characteristics	Conditions	Specified Values	Units
Optical Characteristics			
Attenuation	1310 nm	≤ 0.34	[dB/km]
	1383 nm	≤ 0.34	[dB/km]
	1550 nm	≤ 0.20	[dB/km]
	1625 nm	≤ 0.23	[dB/km]
Attenuation vs. Wavelength	1285–1330 nm	≤ 0.03	[dB/km]
Max. α difference	1525–1575 nm	≤ 0.02	[dB/km]
Dispersion coefficient	1285 - 1340 nm	$\geq -3.4 \leq 3.4$	[ps/(nm · km)]
	1550 nm	≤ 18	[ps/(nm · km)]
	1625 nm	≤ 22	[ps/(nm · km)]
Zero dispersion wavelength		1312 ± 12	[nm]
Zero dispersion slope		≤ 0.091	[ps/(nm ² · km)]
Typical value		0.086	[ps/(nm ² · km)]
PMD			
Maximum Individual Fibre		≤ 0.1	[ps $\sqrt{\text{km}}$]
Link Design Value (M=20,Q=0.01%)		≤ 0.06	[ps $\sqrt{\text{km}}$]
Typical value		0.04	[ps $\sqrt{\text{km}}$]
Cable cutoff wavelength λ_{cc}		≤ 1260	[nm]
Mode field diameter (MFD)	1310 nm	8.7 ~ 9.5	[μm]
	1550 nm	9.9 ~ 10.9	[μm]
Effective group index of refraction (N_{eff})	1310 nm	1.466	
	1550 nm	1.467	
Point discontinuities	1310 nm	≤ 0.05	[dB]
	1550 nm	≤ 0.05	[dB]
Geometrical Characteristics			
Cladding diameter		125.0 ± 0.7	[μm]
Cladding non-circularity		≤ 1.0	[%]
Coating diameter		245 ± 7	[μm]
Coating-cladding concentricity error		≤ 12.0	[μm]
Coating non-circularity		≤ 6.0	[%]
Core-cladding concentricity error		≤ 0.6	[μm]
Curl (radius)		≥ 4	[m]
Delivery length		2.1 to 50.4	[km/reel]
Environmental Characteristics (1310 nm, 1550 nm & 1625 nm)			
Temperature dependence			
Induced attenuation at	-60°C to +85°C	≤ 0.05	[dB/km]
Temperature-humidity cycling			
Induced attenuation at	-10°C to +85°C, 98% RH	≤ 0.05	[dB/km]
Watersoak dependence			
Induced attenuation at	23°C, for 30 days	≤ 0.05	[dB/km]
Damp heat dependence			
Induced attenuation at	85°C and 85% RH, for 30 days	≤ 0.05	[dB/km]
Dry heat aging at	85°C	≤ 0.05	[dB/km]
Mechanical Specification			
Proof test		≥ 9.0	[N]
		≥ 1.0	[%]
		≥ 100	[kpsi]
Macro-bend induced attenuation			
1 turn around a mandrel of 32 mm diameter	1550 nm	≤ 0.05	[dB]
100 turns around a mandrel of 50 mm diameter	1310 nm & 1550 nm	≤ 0.05	[dB]
100 turns around a mandrel of 60 mm diameter	1625 nm	≤ 0.05	[dB]
Coating strip force	typical average force	1.5	[N]
	peak force	$\geq 1.3 \leq 8.9$	[N]
Dynamic stress corrosion susceptibility parameter n_0		≥ 20	