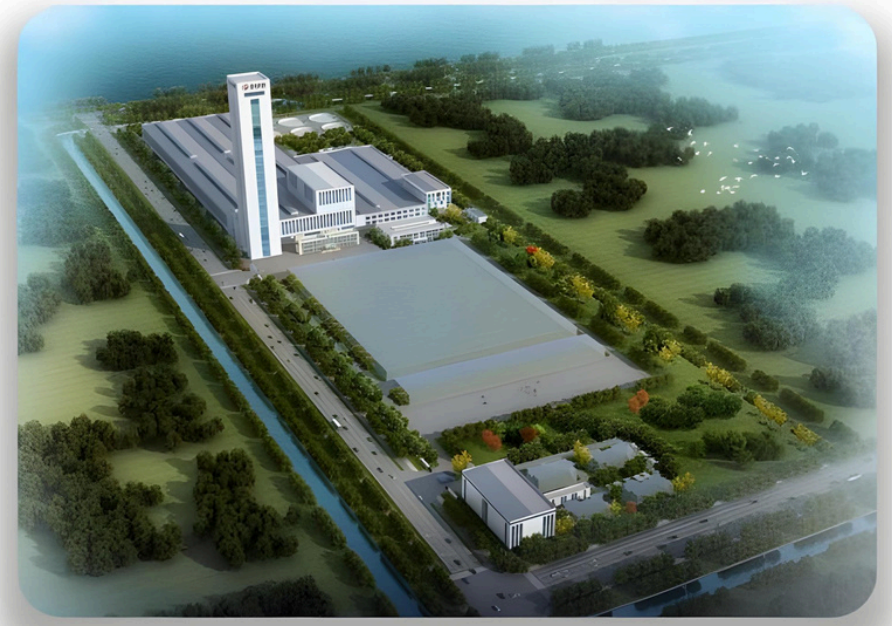
OPTICAL GROUND WIRE (OPGW) - 24 CORE

Our factory:





Specifications

1. Cross Section



Fiber Type: 24xG.652D

	Design		
	Name	**No**	**Material Dia**
Center	SUS Tube	1/24	3.00mm
	Aluminium Tube	diameter	5.10mm
Layer1	20.3%ASwire	10	2.15mm
	AA(LHA2)wire	0	
Layer 2	20.3%ASwire	0	2.80mm
	AA(LHA2)wire	13	

Stranded: core and layer greased stranding direction of outer layer is “right” hand (Z-stranding)	
Cable Diameter	**15.00mm**
Cable Weight	**506kg/km**

Technical Data	according to: IEC 60794 standards	
	Supporting cross section	127.70mm²
	Section of AS Wire	36.31mm²
	Section of AA Wire / AL-Tube	80.05/11.35mm²
	Rate Tensile Strength (RTS)	68.5 kN
	Modulus of Elasticity (E-Modulus)	91.8kN/mm²
	Thermal Elongation Coefficient	18.0 x10^{-6} /°C^{-1}
	Permissible Maximun Working Stress (MAT) (40%RTS)	214.7N/mm²
	Everyday stress (EDS) (16-25%RTS)	85.9 - 134.2N/mm²
	Strain Margin Stress (60%RTS)	322.0N/mm²
	DC resistance (at 20°C)	0.310Ω/km
	Short Circuit Current (0.3s, 50°C - 160°C)	20.60kA
	Short Circuit Current Capacity (20°C - 160°C)	127.31kA²s
	Minimum Bending Radius (Installation)	450mm
	Installation Tensile Strength (≤ 20%RTS)	≤ 13.7kN
Temperature Range	Installation	-10°C to +50°C
	Transportation and Operation	-40°C to +80°C

Remarks: All Sizes and Values are Nominal Values

- 1 / 24 - Tubes / Fibers of Tube
- M128 - Supporting Cross Section
- R69 - Rate Tensile Strength (RTS)
- 127 - Short Circuit Current Capacity (20°C - 160°C)

Specifications

2. Color code guide for fiber in OPGW

Color \ Ring maker	No ring mark	One ring mark
Blue	1	13
Orange	2	14
Green	3	15
Brown	4	16
Grey	5	17
White	6	18
Red	7	19
Black	8	
Nature		20
Yellow	9	21
Violet	10	22
Pink	11	23
Turquoise	12	24

3. Test Requirements for OPGW

OPGW shall be accordance with applicable standard of OPGW and requirement of customer. The following test items shall be carried out according to corresponding reference.

No	Item		Standard Reference
Tests of Optical Fiber			
1	Attenuation coefficient		IEC60793
2	Chromatic dispersion		IEC60793
3	Mode field diameter		IEC60793
4	Cladding diameter		IEC60793
5	Cladding non-circularity		IEC60793
6	Core/clad concentricity error		IEC60793
7	Cable cutoff wavelength		IEC60793
Tests of Wire Before Stranding			
1	Aluminum clad steel	Diameter	IEC61232
2		Tensile strength	
3		Elongation at breaking	
4		Resistance	
1	Aluminum alloy	Diameter	IEC60104
2		Tensile strength	
3		Elongation at breaking	
4		Resistance	

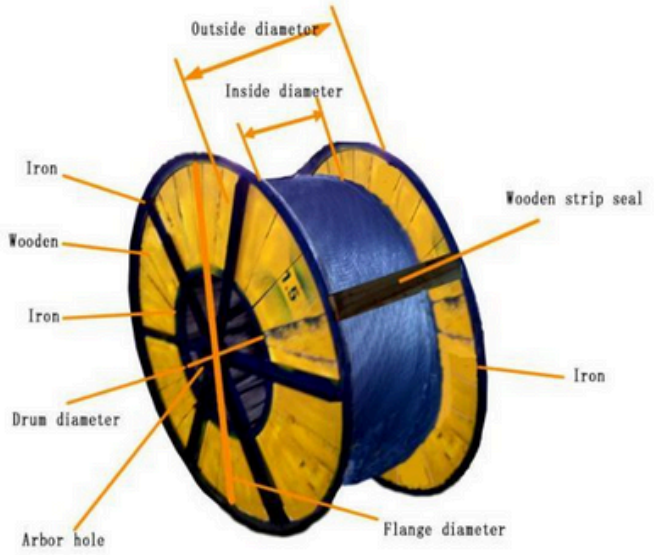
Specifications

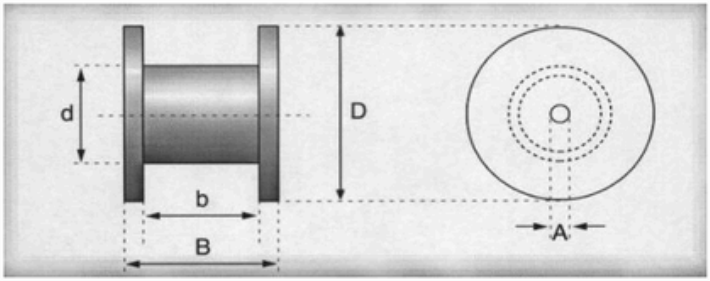
3. Test Requirements for OPGW

Tests of Completed OPGW		
1	Tensile Test	IEC60794
2	**Stress-strain test**	
3	**Water Ingress test**	
4	**CRUSH TEST**	
5	**IMPACT TEST**	
6	**TEMPERATURECYCLING TEST**	
7	**Seepage of Flooding test**	
8	**SHEAVE TEST**	IEC60794
9	**SHORT CIRCUIT TEST**	IEC60794
10	**AEOLIAN VIBRATION TEST**	IEC60794
11	**GALLOPING TEST**	IEC60794
12	**CREEP TEST**	IEC60794
13	**Lightning test**	IEC60794
14	**Salt Spray Corrosion Test**	IEC60794

4. Packing and Drum for OPGW

OPGW shall be wound on a non-returnable steel-wooden drum or metal drum. Both ends of OPGW shall be securely fastened to drum and sealed with a shrinkable cap. The required marking shall be printed with a weather-proof material on the outsides of drum according to customer's requirement.





Cable Diameter (mm)	Drum Length (km)	Drum Dimensions & Weights					
		D	b	B	d	A	weight
		m	m	m	m	m	t
15.00	5	1.7	0.85	1.1	0.8	0.1	0.274

Specifications

5. Optical Fiber G.652D Type

The optical fiber shall be made of high pure silica and germanium doped silica. UV curable acrylate material is applied over fiber cladding as optical fiber primary protective coating. The detail data of optical fiber performance are shown in the following table:

Category	Description	Specifications
Optical Characteristics	Attenuation Coefficient: at 1310 nm at 1550 nm	 ≤ 0.35 dB/km ≤ 0.21 dB/km
	Chromatic Dispersion: at 1310nm at 1550nm	 ≤ 3.5 ps/nm·km ≤ 18 ps/nm·km
	Attenuation Non-uniformity: at 1310nm at 1550 nm	 ≤ 0.03dB ≤ 0.03dB
	Point Discontinuity: at 1310nm at 1550 nm	 ≤ 0.1 dB ≤ 0.1 dB
	Polarization Mode Dispersion (PMD)	≤ 0.2 ps/√km
	Cable Cutoff Wavelength (λ_{cc})	≤ 1260 nm
Geometrical Characteristics	Mode Field Diameter : at 1310nm at 1550 nm	 9.2 ± 0.4μm 10.4 ± 0.5μm
	Cladding Diameter	125 ±1.0μm
	Mode field (Core/clad) concentricity error	≤ 0.6 μm
	Cladding Non-Circularity	≤ 1.0 %
	Coating Diameter	245 ±7μm
	Coating Non-Circularity	≤ 6.0 %
	Coating-Cladding Concentricity error	≤ 12um
	Effective Group Index of Refraction: at 1310nm at 1550 nm	 1.466 1.467
Mechanical Characteristics	Proof Test	≥ 1.0%, 1 sec. ≥ 0.69Gpa (100kpsi)
Environmental Characteristics	Temperature Cycling Induced Attenuation: at 1550nm and 1625 nm (-60° C to +85° C)	0.05dB/km
	Macro bending Loss : at 1550nm and 1625 nm (100 turns; Φ 60 mm)	≤ 0.1dB

6. Storage Requeriment for OPGW

The following storage duration and requirements must be followed to ensure the quality of the cable:

1. After receiving the goods, the installation must be completed within 6 months

2. During storage, the goods must be kept indoors in a well-ventilated environment with a relative humidity of less than 50%