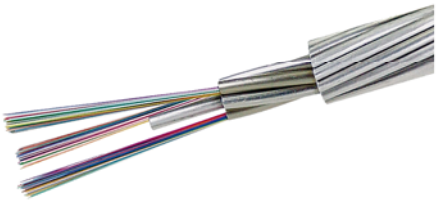
Optical Ground Wire Cable (OPGW)

Standards



ITU-T G.655 singlemode optical fibers
EIA/TIA 598B optical fiber color code
IEEE1138-2009 testing performance for OPGW for use with power lines
IEC 60794 aerial optical cables for OPGW
IEC 61232 aluminum clad steel wire for electrical purposes
IEC 60104 aluminum magnesium silicon alloy wire for overhead conductors
IEC 61089 round wire concentric lay overhead electrical stranded conductors

Description

- Optical Ground Wire Cable (OPGW) for installation with overhead power lines
- Contains optical fiber for data and telecom transmission
- Assures performance and durability
- Stainless tube provides optimum protection to optical fiber
- Stainless tube fiber unit is placed in eccentric position and stranded together with aluminum clad and alloy steel wires simultaneously
- High reliability and long lasting aluminum clad steel wire in the inner layer
- Optimum stranding design makes available secondary fiber in excess length
- Good flexure and crush resistance
- High mechanical strength and large short circuit current capacity

Optical Specification

Attenuation(dB/km)	@1383nm	≤0.4db/km
	@1550nm	≤0.22db/km
	@1625nm	≤0.24db/km
Attenuation vs. Wavelength Max.a difference(Ref λ=1550)	@1525~1575nm	≤0.02db/km
	@1625nm	≤0.03db/km
Dispersion	@1530~1565nm	2.0~6.0ps/(nm*km)
	@1565~1625nm	4.5~11.2ps/(nm*km)
PMD	Max. value for fiber on the reel	0.1ps/km 1/2
	Max. designed value for link	0.08ps/km 1/2
Mode field diameter @1550nm		9.6±0.4μm
Effective group index(Neff)@1550nm		1.468
Effective group index(Neff)@1625nm		1.469
Point discontinuity @1550nm		≤0.5db
Geometrical characteristics		
Cladding diameter		125±1μm
Cladding non-circularity		≤0.7%
Core/cladding concentricity error		≤0.5μm
Fiber diameter with coating(uncolored)		245±5μm
Cladding/coating concentricity error		≤12.0μm
Curl		≥4m
Mechanical characteristic		
Proof test		0.69GPa
Coating strip force(typical value)		1.4N
Dynamic stress corrosion susceptibility parameter(typical value)		≥20
Macro-bend loss	Φ32mm,1 turn	≤0.5dB
(100 turns,75m)	Φ60mm,100 turns	≤0.5dB
Environmental characteristics(@1310nm&1550nm)		
Temperature induced attenuation(-60~+85℃)		≤0.5dB/km
Dry heat induced attenuation(85±2℃,30days)		≤0.5dB/km
Water immersion induced attenuation(23±2℃,30days)		≤0.5dB/km
Damp heat induced attenuation(85±2℃RH85%,30days)		≤0.5dB/km

Continued...

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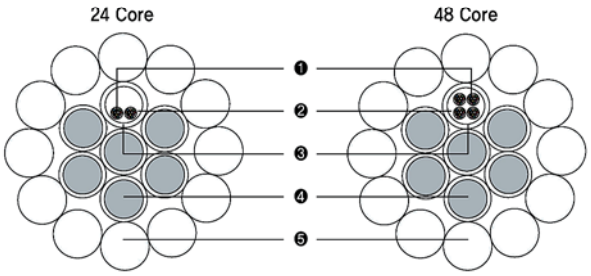
Construction



❶ Optical fiber	Single mode optical fiber (SMF), non-zero dispersion shifted optical fiber (NZ-DSF)
❷ Filling compound	Jelly compound
❸ Steel tube	Stainless steel tube
❹ AS wire or Al alloy	Aluminum clad steel wire or Aluminum alloy wire
❺ AS wire or Al alloy	Aluminum clad steel wire or Aluminum alloy wire

Structural Data

	Named	No.	Diameter
Center	27%AS wire	1	3.60 mm
Layer 1	27%AS wire	5	3.50 mm
	SUS-Tube	1	3.40 mm
Layer 2	AA wire(LHA2)	11	4.00 mm

Technical Data

Technical Data	According to IEEE std 1138、IEC 60794-4 standards		
	Stranding direction of outer layer is "Right-hand"		
	Fiber No. & Type	48 G.655	24 G.655
	Standard Diameter	18.60 mm	18.60 mm
	Supporting Cross Section	196.51 mm^2	196.51 mm^2
	Section of AS wire	58.28 mm^2	58.28 mm^2
	Section of AA wire	138.23 mm^2	138.23 mm^2
	Approximate mass	751.7 kg/km	751.7 kg/km
	Rated Tensile Strength	97.5 kN	97.5 kN
	Maximum Allowable Tension(40%RTS)	198.5 N/mm^2	198.5 N/mm^2
	Everyday Stress(20%RTS)	99.2 N/mm^2	99.2 N/mm^2
	Strain Margin Stress(70%RTS)	347.3 N/mm^2	347.3 N/mm^2
	Modulus of Elasticity	87.7 GPa	87.7 GPa
	Thermal Elongation Coefficient	18.5 $\times 10^{-6}$/℃	18.5 $\times 10^{-6}$/℃
	Calculated D.C. Resistance at 20℃	0.197 Ω/km	0.197 Ω/km
	Short-Circuit Current （1 sec, 40～200℃）	18.0 kA	18.0 kA
	Short-Circuit Current Capacity（40～200℃）	322.5 $kA^2 \cdot s$	322.5 $kA^2 \cdot s$
	Minimum Bending Radius	372 mm	372 mm
	Ratio between Pull and Weight	13.23 km	13.23 km
Temperature Range:	Installation	-10℃～+50 ℃	-10℃～+50 ℃
	Transportation and Operation	-40℃～+80 ℃	-40℃～+80 ℃

Remarks: All Sizes and Values are Nominal Values

Ordering Information

OPGW-B4-**ST**-**24**-322.5 i-Net Networks Stranded Stainless Tube Optical Ground Wire Cable Singlemode 9/125 G.655 24 Core

ST **ST**—Stranded Stainless Tube, **CT**—Central Stainless Tube

24 **12**—12 Core, **24**—24 Core, **48**—48 Core, **96**—96 Core, **144**—144 Core