Nitrotel
Professional Networking Products
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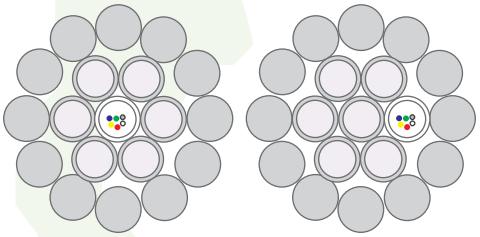
Part No.
NT-OPGW-12S

PRODUCT DATA SHEET

Optical Fiber Composite Overhead Ground Wire Cable(OPGW)



Application:

OPGW optical cables are mainly used in 500KV, 220KV and 110KV voltage lines. They are affected by factors such as power failure, safety and so on, and are mostly applied to new lines. The applicable characteristics of OPGW are:

- High voltage over 110kV lines have large span (usually above 250M).
- It is easy to maintain and is easy to solve for line crossing problem. Its mechanical characteristics can meet the large span of the line.
- The outer layer of OPGW is metal armor, which has no effect on high voltage corrosion and degradation.
- OPGW must stop power and power loss in construction, so OPGW should be used in the new high voltage line above the new 110kV.
- In the performance index of OPGW, the larger the short circuit current is, the more need the good conductor to amour, the more the tensile strength is reduced, and the short circuit current capacity should be improved under the condition of the tensile strength. Only increase the cross-sectional area of the metal, which leads to the increase of cable diameter and cable weight, which raises safety problems for the strength of transmission line towers.

Characteristic:

- It has the dual functions of ground wire and communication optical cable and eliminates the huge cost of repeated erection and maintenance.
- It is not necessary to consider the best hanging point and electric corrosion factors on the top of the overhead transmission line tower.
- During the transformation of the old line, the outer diameter and tension weight of the optical cable can match well with the other ground wire.
- The transmission capacity is large, the communication quality is high, and the reliability is good.
- With superior mechanical and electrical properties.
- It has good safety performance, long service life, and is not easy to be shot by destructive weapons.

OPGW Parameters:
Optical Fiber Unit Structure of Central Stainless-Steel Tube
Structure: Stainless Steel Tube Optical Fiber Cell Structure with Single Stranded Conductor.

Item	OPGW-1C1/36 (M48/R60-12)	OPGW-1C1/40 (M58/R72-16)
Maximum Core Number of Fiber	36	40
Optical Fiber Unit Specification	φ3.2 mm	φ3.5mm
Cable Diameter	φ9.6 mm	φ10.5 mm
Bearing Section Area	48 mm2	58 mm2
Weight	338 kg/km	400 kg/km
RTS	59 kN	71 kN
DC Resistance at 20?	1.782 Ω/km	1.490 Ω/km
Short Circuit Current Capacity (40~200?)	11 kA2·s	16 kA2·s
Coefficient of Linear Expansion	13.0×10-6/?	13.0×10-6/?
Young's Modulus	162.0 kN/mm2	162.0 kN/mm2

Structure: Double Deck Twisted Center Stainless Steel Tube Optical Fiber Unit Structure.

Item	OPGW-2C1/30 (M127/R78-137)	OPGW-2C1/40 (M163/R100-226)
Maximum Core Number of Fiber	30	40
Optical Fiber Unit Specification	φ3.0 mm	φ3.4 mm
Cable Diameter	φ15.0 mm	φ17.0 mm
Cable Diameter	127 mm2	163 mm2
Weight	529 kg/km	673 kg/km
RTS	77 kN	99 kN
DC Resistance at 20?	0.329 Ω/km	0.255 Ω/km
Short Circuit Current Capacity (40~200?)	137 kA2·s	226 kA2·s
Coefficient of Linear Expansion	17.5×10-6/?	17.5×10-6/?
Young's Modulus	97.3 kN/mm2	97.3 kN/mm2

Optical Fiber Element Structure of Central Aluminum Wrapped Steel Tube
Structure: Single Center Stranded Aluminum Coated Steel Tube Structure

Item	OPGW(L)-1S 12(M83/R99-38)	OPGW(L)-1S 30(M104/R125-60)
Maximum Core Number of Fiber	12	30
Optical Fiber Unit Specification	φ4.0 mm	φ4.5 mm
Cable Diameter	φ12.0 mm	φ13.5 mm
Cable Diameter	83 mm2	104 mm2
Weight	539 kg/km	673 kg/km
RTS	99 kN	125 kN
DC Resistance at 20?	0.899 Ω/km	0.724 Ω/km
Short Circuit Current Capacity (40~200?)	38.4 kA2·s	59.8 kA2·s
Coefficient of Linear Expansion	13.4×10-6/?	13.4×10-6/?
Young's Modulus	153.1 kN/mm2	153.8 kN/mm2

Structure: Double End Stranded Steel Tube Structure with Center Aluminum Clad Steel Tube

Item	OPGW(L)-1S 12(M234/R292-282)	OPGW(L)-1S 30(M295/R370-448)
Maximum Core Number of Fiber	12	30
Optical Fiber Unit Specification	φ4.0 mm	φ4.5 mm
Cable Diameter	φ20.0 mm	φ22.5 mm
Cable Diameter	234 mm2	295 mm2
Weight	1531 kg/km	1930 kg/km
RTS	292 kN	370 kN
DC Resistance at 20?	0.350 Ω/km	0.279 Ω/km
Short Circuit Current Capacity (40~200?)	282 kA2·s	448 kA2·s
Coefficient of Linear Expansion	13.1×10-6/?	13.1×10-6/?
Young's Modulus	158.8 kN/mm2	159.1 kN/mm2

Fiber Element Structure of Layer Stranded Stainless Steel Tube
Structure: Double Decker Stranded Stainless Steel Tube Optical Fiber Unit Structure

Item	OPGW-2S1/30(M107/R66-97)	OPGW-2S1/36(M128/R79-139)
Maximum Core Number of Fiber	30	36
Optical Fiber Unit Specification	φ2.7 mm	φ3.0 mm
Cable Diameter	φ13.85 mm	φ15.2 mm
Cable Diameter	107 mm2	128 mm2
Weight	450 kg/km	535 kg/km
RTS	65.8 kN	78.9 kN
DC Resistance at 20?	0.389Ω/km	0.327Ω/km
Short Circuit Current Capacity (40~200?)	97 kA2·s	138 kA2·s
Coefficient of Linear Expansion	17.4×10-6/?	17.4×10-6/?
Young's Modulus	97.6 kN/mm2	97.8 kN/mm2

Structure: Double Decker Stranded Stainless Steel Tube Optical Fiber Unit Structure

Item	OPGW-2S1/30(M107/R133-57)	OPGW-2S1/36(M128/R159-81)
Maximum Core Number of Fiber	30	36
Optical Fiber Unit Specification	φ2.7 mm	φ3.0 mm
Cable Diameter	φ13.85 mm	φ15.2 mm
Cable Diameter	107 mm2	128 mm2
Weight	727 kg/km	865 kg/km
RTS	133 kN	159 kN
DC Resistance at 20?	0.803Ω/km	0.673Ω/km
Short Circuit Current Capacity (40~200?)	57 kA2·s	81 kA2·s
Coefficient of Linear Expansion	13.0×10-6/?	13.0×10-6/?
Young's Modulus	162.0 kN/mm2	162.0 kN/mm2

Fiber Element Structure of Layer Stranded Stainless Steel Tube
Structure: Double Decker Stranded Stainless Steel Tube Optical Fiber Unit Structure

Item	OPGW-3S1/36(M255/R116-590)
Maximum Core Number of Fiber	36
Optical Fiber Unit Specification	φ3.0 mm
Cable Diameter	φ21.2 mm
Cable Diameter	255 mm2
Weight	879 kg/km
RTS	116 kN
DC Resistance at 20?	0.145 Ω/km
Short Circuit Current Capacity (40~200?)	590 kA2·s
Coefficient of Linear Expansion	19.6×10-6/?
Young's Modulus	81.5 kN/mm2

Structure: Three Strand Stranded Stainless Steel Tube Optical Fiber Unit Structure

Item	OPGW-3S1/48(M327/R407-530)
Maximum Core Number of Fiber	48
Optical Fiber Unit Specification	φ3.4 mm
Cable Diameter	φ23.9 mm
Cable Diameter	327 mm2
Weight	2178 kg/km
RTS	406 kN
DC Resistance at 20?	0.264 Ω/km
Short Circuit Current Capacity (40~200?)	530 kA2·s
Coefficient of Linear Expansion	13.0×10-6/?
Young's Modulus	162.0 kN/mm2