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# 1. Power Optical Fiber Cable

## 1.1 OPGW Composite overhead Ground wire with optical fibers

### Introduction:

OPGW is a type of cable structure with composite of optical transmission and overhead ground wire for power transmission. It's working in power transmission line both as optical fiber cable and overhead ground wire which can provide protection of lightning strike and conducting short circuit current.

The OPGW consist of stainless steel tube optical unit, aluminum cladding steel wire, aluminum alloy wire. It has central stainless steel tube structure and layer stranding structure. We can design the structure according to different environment condition and customer's requirements.

### Features:

- Stainless-steel optical fiber unit of central loose tube or layer stranding structure
- Aluminum alloy wire and aluminum clad steel wire armored
- Coated with anticorrosive grease between layers
- OPGW can support heavy load and long span installation
- OPGW can meet the ground wire's requirement of mechanical and electric by adjusting proportion of steel and aluminum.
- Easy to produce the similar specification of exist ground wire can replace the exist ground wire

### Application properties:

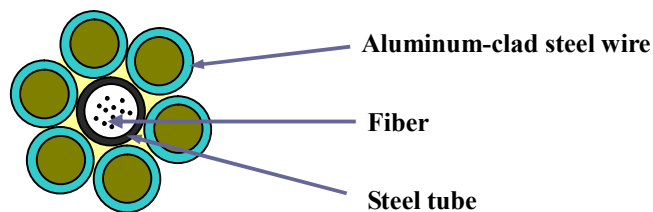
- Adapt to replace the aged ground wire and new structure of high voltage ground wire
- lightning protection and conduct the short circuit current
- Optical fiber communication ability

### Specification of main products:

Cable model	OPGW-60	OPGW-70	OPGW-90	OPGW-110	OPGW-130
Number /diameter(mm) of stainless steel tube	1/3.5	2/2.4	2/2.6	2/2.8	1/3.0
Number /diameter of AL wire(mm)	0/3.5	12/2.4	12/2.6	12/2.8	12/3.0
Number /diameter of ACS wire(mm)	6/3.5	5/2.4	5/2.6	5/2.8	6/3.0
Diameter of Cable (mm)	10.5	12.0	13.0	14.0	15.0
RTS(KN)	75	45	53	64	80
Cable weight (kg/km)	415	320	374	432	527
DC resistance(20 <sup>0</sup> C Ω/km)	1.36	0.524	0.448	0.386	0.327
Modulus of elasticity(Gpa)	162.0	96.1	95.9	95.6	97.8
coefficient of Linear thermal expansion(1/°C × 10 <sup>-6</sup> )	12.6	17.8	17.8	17.8	17.2
Short circuit capacity (kA <sup>2</sup> s)	24.0	57.3	78.9	105.8	150.4
Max. operation temperature (°C)	200	200	200	200	200
Max. fiber count	48	32	48	52	30

### Typical Structure:

- Type 1. Central stainless steel tube structure



- Type 2. Layer stranding structure

