

Central Tube Optical Ground Wire (OPGW)

► Overview

The Central Tube Optical Ground Wire (OPGW) is a type of cable that is used in overhead power lines. Such cable combines the functions of grounding and communications. An OPGW cable contains a tubular structure with one or more optical fibers in it, surrounded by layers of steel and aluminum wire. The OPGW cable is run between the tops of high-voltage electricity pylons. The conductive part of the cable serves to bond adjacent towers to earth ground, and shields the high-voltage conductors from lightning strikes.



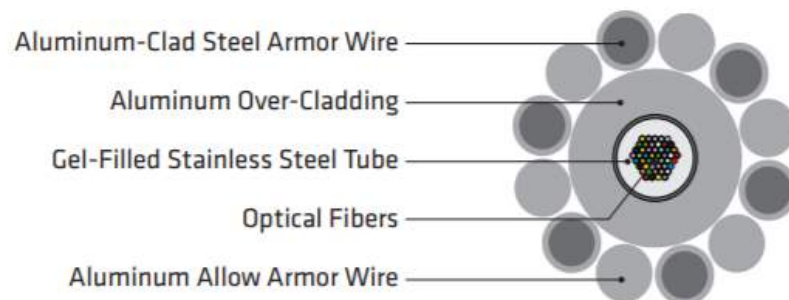
► Features

- ◇ Small diameter, low weight reduces retrofit impact
- ◇ Hermetically sealed stainless steel tubes provide mechanical and thermal protection for fibers
- ◇ Thick-walled aluminum pipe provides crush resistance and boosts fault current rating
- ◇ Replacement with ACS wires improves lightning resistance
- ◇ Lower wind and ice loads put less load on structures
- ◇ Fiber grouped in bundles of 12 for ease of splicing

► Applications

- ◇ For use by electric utilities on transmission lines in lieu of traditional shield wire
- ◇ For retrofit applications where existing shield wire needs to be replaced with OPGW
- ◇ For new transmission lines instead of traditional shield wire
- ◇ Voice, video, data transmission
- ◇ SCADA networks
- ◇ Dark fiber leasing

► Structure



► **Parameter**

1) Typical design for Single Layer OPGW Cable:

Specification	Fiber Count	Diameter	Weight	RTS	Short Circuit
		(mm)	(kg/km)	(KN)	(KA2s)
OPGW-32(40.6;4.7)	12	7.8	243	40.6	4.7
OPGW-42(54.0;8.4)	24	9	313	54	8.4
OPGW-42(43.5;10.6)	24	9	284	43.5	10.6
OPGW-54(55.9;17.5)	36	10.2	394	67.8	13.9
OPGW-61(73.7;17.5)	48	10.8	438	73.7	17.5
OPGW-61(55.1;24.5)	48	10.8	358	55.1	24.5
OPGW-68(80.8;21.7)	54	11.4	485	80.8	21.7
OPGW-75(54.5;41.7)	60	12	459	63	36.3
OPGW-76(54.5;41.7)	60	12	385	54.5	41.7

2) Typical design for Double Layer OPGW Cable:

Specification	Fiber Count	Diameter	Weight	RTS	Short Circuit
		(mm)	(kg/km)	(KN)	(KA2s)
OPGW-96[121.7;42.2]	12	13	671	121.7	42.2
OPGW-127[141.0;87.9]	24	15	825	141	87.9
OPGW-127[77.8;128.0]	24	15	547	77.8	128
OPGW-145(121.0;132.2)	28	16	857	121	132.2
OPGW-163(138.2;183.6)	36	17	910	138.2	186.3
OPGW-163(99.9;213.7)	36	17	694	99.9	213.7
OPGW-183(109.7;268.7)	48	18	775	109.7	268.7
OPGW-183(118.4;261.6)	48	18	895	118.4	261.6

► **Related Cable Fittings:**

